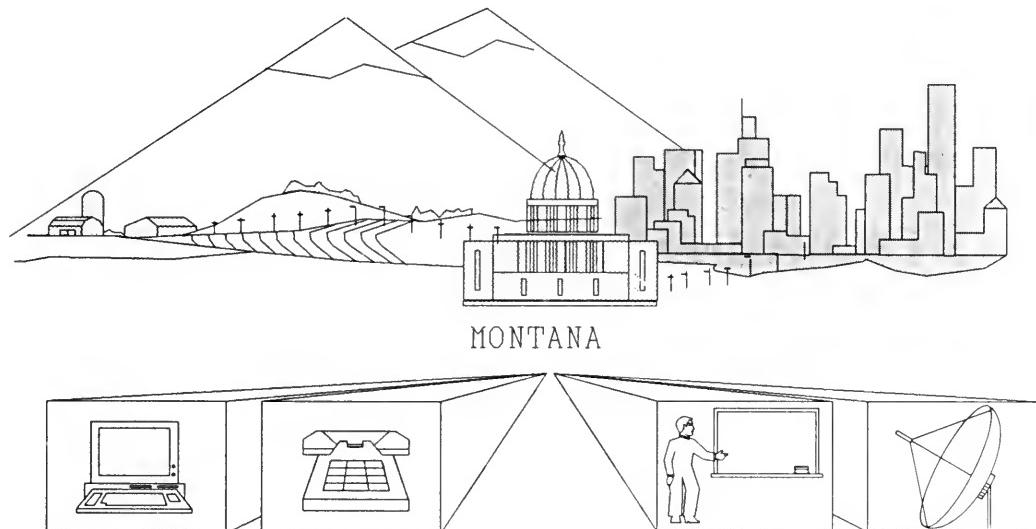


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INFORMATION AND COMMUNICATION TECHNOLOGY IN MONTANA STATE GOVERNMENT

A Report of Agency Information System Plans
for Fiscal Years 1992-1993



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FOREWORD

As Montana State Government looks to the challenges of the 1990's and beyond, it is clear that information and communications technology plays a more important role than ever before in the delivery of government services. Computers of all sizes and capabilities, telecommunications systems in government offices and schools, and advanced software for management and processing of state government's huge information resources will grow in numbers, and in our reliance upon them. This report on Information and Communication Technology in Montana State Government provides an overview of state agency accomplishments in the past two years using these technologies, with a look at agency goals in the upcoming biennium.

More than 360 separate technological achievements are highlighted in this report. The report presents more than 300 new initiatives that agencies intend to implement or begin in the coming biennium. These numbers indicate the prevalence of these technologies in today's state government today. Never before has technology been such an important partner to state agencies in the efficient, economical performance of their public duties. Certainly, this trend will continue through this decade and beyond and, if properly managed, will benefit both state agencies and the public.

As a supplement to agency accomplishments and goals, Appendix A contains a more detailed overview of the Department of Administration, Information Services Division's activities and plans. Appendix B describes Montana State Government's current information and communications architectures, with statements of direction to meet our future challenges using these technologies.

We would like to thank each agency for its contribution to this report. The accomplishments serve as important benchmarks through which the State can judge its progress in information management. The goals provide direction to program managers, government officials and legislators as they use information technologies to improve Montana's government.

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AGENCY ACCOMPLISHMENTS AND GOALS

This report presents the information and communication system accomplishments for fiscal years 1990 and 1991 (FY90 and FY91) and goals for fiscal years 1992 and 1993 (FY92 and FY93). These goals and accomplishments have been developed by agency personnel. The amount of information and level of detail vary depending upon the size of an agency's systems budget and the complexity of its information processing and communication needs. Some agencies have summarized their accomplishments and goals at a fairly high level to cover the wide range of information system activities while others have provided more technical detail.

ADMINISTRATION

Accomplishments

The Department of Administration (DOA) installed a Local Area Network (LAN) in the Mitchell Building linking computers in the Director's Office, the Accounting Bureau, the Management Support Bureau, the Personnel Division, and the Tort Claims Division. This LAN enables the DOA staff to draft, store, share, transfer and receive information electronically.

The Director's Office completed a department-wide study on office automation. A Data Processing Steering Committee was created to coordinate office automation within the DOA and to provide direction to the Department's data processing personnel.

The Accounting Bureau completed several major enhancements to the Statewide Budgeting and Accounting System (SBAS) that allows agency input through the Online Entry & Edit (OE&E) function to operate more efficiently. The number of agencies using electronic transmission of SBAS data has increased. Work began on downloading State Financial Report data directly into spreadsheet software on personal computers (PC's).

A LAN was installed in the Architecture and Engineering Division (A/E). Master forms were computer generated to expedite document production for agreements, delegations, notices to proceed, and office correspondence. Some master specifications have been developed and plans and specifications were computerized to facilitate tracking. The Long Range Building Program is now available to agencies on computer diskette. Agencies may complete and submit diskettes to A/E for consolidation into the Building Program Book. A computer system has also been set up to track insurance policies and their expiration dates.

The General Services Division purchased a Pitney Bowes Mail Management system. This system tracks mail cost by account number, adds processing overhead costs and produces detailed management reports. The Division developed a

personal computer (PC) based application to handle inventory control for door keys.

The Information Services Division (ISD) underwent a major reorganization to better align itself with the technologies it manages. The Division further consolidated and standardized the State's data network with the inclusion of local area network facilities and the addition of a statewide Digital Equipment Corporation Network (DECNET). Digital voice and data facilities were expanded significantly to improve quality, reduce unit costs and position the State to meet future needs (including video). The State now has an integrated, cost-effective means of responding to the needs of agencies and educational institutions with a variety of vendor services. The Division has continued to standardize microcomputer products by providing support, training and purchasing assistance. ISD is also seeking to improve public access to information through telephone service and direct computer links.

The implementation of the statewide Nine-One-One Emergency Telephone System (9-1-1) Program has made significant progress. Twenty-seven of the state approved emergency telephone systems are currently operational and available for public use. These systems result in emergency telephone service to 65% of the State's population.

The Public Safety Communications Program has been placed under the ISD Office of Policy, Research and Development to allow close coordination with the 9-1-1 Program. Utilization plans have been established for all state mutual aid radio frequencies. Fire and law enforcement policies and procedures have been adopted. More than sixty base stations were established on the National Law Enforcement Frequency in 1990.

In close coordination with the Superintendent of Public Instruction and the Commissioner of Higher Education, the DOA has worked with a telecommunications engineering consultant to

ADMINISTRATION Accomplishments

explore the costs and benefits of distance learning telecommunications enhancements throughout Montana.

With the June 1989 purchase of a new IBM 3090, ISD has increased mainframe capacity and speed to a level approximately twice that of its predecessor. ISD has continued to reduce computer processing rates in FY90-91. With the installation of a new laser printer, ISD provides high quality, high speed print capability as well as electronic design and printing of special forms.

ISD has privatized the data entry function with a contract that is projected to save the State approximately \$300,000 over a three year period. This contract allows any other agency to use the contractor's data entry services, offering the possibility of additional savings to the State.

ISD has provided database design services to several state agencies using the State's existing mainframe database software. The result is an increasing base of application systems built on existing software. One such system is The Economic Assistance Management System (TEAMS), a very large application system under development in the Department of Social and Rehabilitation Services. Programming services were provided to several state agencies to develop new systems and make major enhancements to several existing systems. Statewide support of office and data systems software continues. The emphasis of these activities is on providing a common set of software products to increase State government's efficiency and effectiveness.

Further detail on ISD accomplishments appears in Appendix A--Information Services Division.

The Management Services Bureau installed the Mitchell Building LAN and provided technical support for the Department's six additional LAN's. Enhanced PC software, access to other department networks, and shared printers improved the functionality of the LAN's. The Bureau provided technical support on depart-

ment acquisition and use of computer equipment and software. A PC based database application was developed to track LAN project and service requests. A PC based system was developed for Investment Security Collateral reporting. The Bureau created a Data Processing Users Committee to address LAN and PC software problems and training issues.

PC based applications were developed for the Personnel Division to track pay plan exceptions; to provide sick leave fund transaction summaries; and to automate the Division's expenditure log, classification appeal log, Professional Development Center (PDC) customer address lists, and EEO recruitment source mailing lists. The manual billing log is being automated.

The Property and Supply Bureau's Wang computer system was upgraded and expanded. Disk storage was increased 100%; the main memory was expanded; a backup/recovery tape drive was added; and a Laser printer was installed to handle the increased printing load. A System Network Architecture (SNA) link to the mainframe was installed for data input to SBAS.

The Public Employees Retirement Division (PERD) installed a local area network and developed master forms and PC applications. Most of the Division's PC's are linked to the mainframe for access to SBAS, TSO, the Auditor's Warrant system and PERD's retiree system. This automation has improved work efficiency and effectiveness.

The Publications and Graphics Bureau installed desktop publishing software to increase flexibility in form and report design. A PC based database application was developed to track photocopier machines.

The APS Open Market module was fully implemented on the Purchasing Bureau's LAN. Federal ID numbers are available for input into the vendor system. The Bureau upgraded LAN hardware and software to meet increased utilization and backup/recovery requirements.

ADMINISTRATION

Accomplishments

A variety of improvements to the State Compensation Mutual Insurance Fund's primary operating systems were completed during the biennium. An automated system for paying wage loss benefits through the State Auditor's payment system replaced typed warrants. This system not only saves many hours of typing but also allows better response to claimant questions. A file locator system provides for tracking paper files and identifying archived files. An online system for calculation and update of reserves was completed; it provides immediate information update and improved information about the basis for reserving. Systems to assist policyholder information processing included new methods to record and monitor owner and partner payroll reporting; changes to management reports for the "new" and "old" funds that resulted from the special legislative session; and systems changes that allow employers to report payroll and to pay premium monthly in addition to quarterly or semiannually. Systems changes in process will provide premium rating options based on employer loss experience, making it possible to "reward" policy-holders with good loss experience and to "penalize" policyholders with poor loss experience.

The formulation of the new State Compensation Mutual Insurance Fund included transfer of the Management Information Services Department from the former Division's Administrative Support Bureau to the new Fund's executive

branch. The addition of staff to provide systems programming and support inhouse rather than through contracted services has reduced costs, improved control and increased programming productivity.

The State Tax Appeal Board (STAB) installed a LAN for the online sharing of PC files. The Board developed a database application that completes the amalgamation of Tax Appeal History from 1986 to the present and one that tracks and tallies county tax appeal board expense.

The Teachers' Retirement Division installed a LAN to assist in general office automation. Electronic deposit has replaced direct mail deposit for retired teachers' payroll. Payroll reports were converted to microfiche. The Teachers' Retirement System (TRS) was enhanced to accept most electronic forms of monthly payroll reporting.

The Tort Claims Division developed two PC applications for Claims and Lawsuits to maintain and track loss experience and claims. The systems contain open and closed files for the last two years. The files are used to provide information for actuarial studies, quarterly reports, budget information and ad hoc reports. A legal tickler system (docket) was developed for each attorney and paralegal staff member.

Goals

The Accounting Division plans to continue enhancements and improvements to the OE&E function, develop a system to provide SBAS information electronically statewide, and complete the system implementation to provide State Financial Report data directly to spreadsheet software on personal computers.

The Architecture and Engineering Division will develop a tracking and automation system for

all A/E projects. All staff will have access to information such as appropriation amounts, contract dates, notice to proceed date, change orders, substantial and final completion dates, and warranty dates. The Division will also complete of master forms for all A/E documents, master specification documents for all types of construction, and division procedural guides.

ADMINISTRATION Goals

The Director's Office plans to maximize the standardization of microcomputer software and hardware within the Department and will investigate integrating all DOA LAN's into one network. The goal of the Data Processing Steering Committee is to maximize the Department's return on the investment in microcomputer and network technology.

The General Services Division plans to develop a PC based application to record historical utility information. This system will generate management reports describing the consumption and cost of water, gas and electricity. The Division will also evaluate the lease and real estate software to be used in its statewide lease program and investigate the feasibility of replacing its door key inventory system with one that ISD is developing.

The Information Services Division will improve the reliability, functionality and cost-effectiveness of the State's data and telecommunication networks. To achieve this goal, non-standard data networks and computer equipment will be migrated to state network standards when feasible. Integration of existing standard networks (DECNET, SNA, and Token Ring) will result in a single, cost-effective data network for the State. Users will have access to all State computing resources including the State's IBM mainframe. The Division will emphasize reliability, cost-effectiveness and the ability to meet application needs.

ISD will continue to review and enhance state telecommunication and network standards and facilities to ensure the state can take advantage of opportunities in voice, data and video technologies. The Division will continue to enhance direct private access to state information with appropriate telephone services and computer access.

The goal of the 9-1-1 program is to implement five to seven new 9-1-1 systems per fiscal year. The program will continue to provide technical

assistance to improve emergency communications systems using 9-1-1.

The continued development of mutual aid radio is planned for Public Safety Communications. Significant frequency planning will occur over the biennium and efforts to automate the frequency coordination system will continue.

ISD will continue to provide technical support for distance learning programs underway with the Office of Public Instruction and the University System.

ISD plans to upgrade the current magnetic tape storage system. The new cartridge tape system will provide higher speed and reliability while decreasing the labor intensity of tape processing. Solutions to the problems of security and disaster recovery will be pursued.

ISD will continue to provide a wide variety of analytical and technical services for both application and office systems. Agency data processing staffs will continue to receive database design services. Technical consulting, systems development, and systems support services will continue for agency systems and centralized Statewide systems such as SBAS and the State Payroll, Personnel and Position Control (P/P/P) system. General support for office automation software for such functions as word processing, statistical analysis, spreadsheets, database management, and a number of "personnel productivity" tools will also continue, including a phased conversion to a Statewide Electronic Mail system.

For further detail on ISD goals, refer to Appendix A--Information Services Division and Appendix B--Information and Communication Systems Architecture.

The Management Services Bureau will investigate using compact disk read-only memory (CD-ROM) technology for data storage and retrieval with large library applications. Overall Bureau goals are to improve coordination of all

ADMINISTRATION

Goals

Department automation activities and to introduce new technologies in networking, desktop publishing and PC based software.

The Personnel Division plans to develop PC based applications for the following: policy interpretations and related cases and opinions; the Montana Operations Manual (MOM) policy status system; the PDC billing and class course record system; a networked log of current Professional Development Forms (PDF's); an Incentive Awards tracking system; a billing system for State Legislator's insurance premiums; a wellness program tracking system; a routine workforce profile system; and a system to log interagency invoices, special account service invoices, and the Property Held in Trust account. The Division will oversee ISD's development of the online benefits system.

The Public Employees Retirement Division will develop an online system to provide actuaries and auditors with more current information in such areas as tracing and calculating buy-backs and employee salaries. The Division plans to increase the number of agencies reporting payroll electronically and the number of cities/counties reporting PERD information directly to the mainframe. The Division will also develop PC applications to track volunteer fire fighters, locate office files, and generate SBAS documents on PC's.

The Publications and Graphics Bureau plans to develop a PC application to track Bureau printing requests and jobs. The Purchasing Bureau plans an online mainframe application to allow agencies access to the State vendor list. The Bureau will enhance the management reports in the Bid Tabulation system and develop a PC application to manage the Bid Tabulation system archive information.

The State Compensation Mutual Insurance Fund intends to devote the next biennium to information systems planning. Funding has been requested for a consulting contract to evaluate the EDP environment and make long-

term recommendations. This evaluation will include analysis of all hardware and software, current and future needs and directions, and resources available. The evaluation results will become the basis for systems development. In the interim, the State Fund will continue to improve the operational processing capabilities of its primary systems. Some of the projects to be considered during the biennium include: online claims tracking system to identify claim files due for review; an automated system for generating standardized letters; field and rehabilitation referral systems; legal docketing and case monitoring; follow-up on physicians' reporting; improved delinquent payments management; improved monitoring of policies on loss control programs; and scheduled and retrospective rating.

The State Tax Appeal Board will develop PC applications for STAB office procedures, time management and staff workload information management. The Board plans to create computerized forms to expedite the production of office business documents and correspondence.

The Teachers Retirement Division will complete enhancements to the TRS database, automate the month-end balancing process and enhance the program that calculates retiree interest. The Division will acquire portable computers for field work.

The Tort Claims Division plans to install access to LEXIS computer assisted legal research. The Division will develop PC application programs for legal information management including automated document generation by all staff; a legal brief and opinion database; electronic legal case file organization databases; address and telephone number retrieval systems; and trial support, staff workload and time management systems. CD-ROM technology will be evaluated for use in storage/retrieval of the Supreme Court Standard database. A Division applications manual will be developed.

AGRICULTURE Accomplishments

The Department of Agriculture completed the systems analysis for the office and laboratory automation at the State Grain Laboratory in Great Falls. Installation of the LAN has begun. This project includes completion of two agricultural commodity programs.

A computerized agricultural loan tracking system was completed and installed.

Databases have been established for horticultural inspection data, and individual databases have been established for issuance of horticultural licenses and registration form issuance.

A multi-line user system now permits multiple access to the electronic bulletin board.

Department employees have received training on the networked WordPerfect package. Fax machines have been installed in field offices.

Goals

The completion of programming for all agricultural commodities and the establishment of a system maintenance plan will complete the State Grain Laboratory automation.

The Department plans to establish a master data base for issuing a single, consolidated horticultural license incorporating multiple agricultural licenses.

A pesticide enforcement tracking system will be developed.

System analyses are planned in the following areas:

- Major analytical laboratory program to track samples, analyses and accounts receivable.
- Groundwater program needs.

STATE AUDITOR Accomplishments

For the 1990-91 biennium, the State Auditor's Office had an appropriation of \$40,000 to initiate the conversion from an obsolete Wang system to a networked PC system. The Securities Department was networked and the system database conversion has begun. The Wang system is currently overloaded to the point that several serious system failures were experienced and valuable data were lost. The conversion of the Securities Department, to be completed by March 1991, will allow three or four months of Wang usage before the system is again at peak load.

Goals

The primary goal in FY92-93 is to obtain funding for the complete phaseout of the Wang system. A networked, compatible PC system will replace existing software and hardware. This will yield substantial cost savings to the State for the following reasons:

- Staff productivity will improve as extended system downtime is eliminated.
- The new system will be compatible with other State systems, making support and technical expertise readily available.

For the Payroll Department, online payroll entry and the P/P/P system have reduced the burden of payroll maintenance and recording.

The unavailability of system support, software, or hardware for the existing Wang system has resulted in a relatively stagnant period of technological advancement for this office.

- Maintenance costs will be reduced significantly because the extraordinary maintenance and repair costs of the current system will be eliminated.

Additional goals are to continue the automation and advancement of the P/P/P system, to convert the Insurance and Securities Departments' files to a better data base system, and to provide additional public information relating to Insurance and Securities through a common data system.

COMMERCE Accomplishments

Use of the Department of Commerce's main system has grown significantly with increased use of equipment already in place and 21 ports --terminals or printers--added. WordPerfect was installed to foster compatibility within State government.

To improve system security, the computer room was moved from a ground floor location with four windows on an outside wall to a new location in the center of the building. This move also shortened wiring paths to most locations in the main building.

The Montana Travel Promotion Division data base was completely redesigned yielding a ten-fold improvement in operating efficiency.

The Building Codes Bureau's data processing function was moved from the obsolete Tele-video system to the Department's main mini-computer system.

Several Building Code functions have been automated and the licensing boards systems have been partially redesigned to eliminate redundancy. Automation of the major remaining system, the electrical permits function, has been delayed because of changes in requirements. Completion of the licensing boards systems

redesign and automation of the field activities has been delayed due to lack of funding.

The Board of Investments added a second processor. The Board now uses one as a STAR-LAN network server to the PC's running investment-tracking software and the other for general purpose office automation.

The goal of decreasing the number of mini-computers to maintain fewer copies of operating system and application software was not fully achieved due to lack of funding. Increased mini-computer capacity, decreasing hardware costs and availability of compatible equipment on the used market should make this possible by the end of the current biennium.

The Lottery Division joined a multi-state online lottery using terminals in hundreds of locations statewide tied into the State of Washington's online lottery computer center via high-speed redundant lines.

The Professional and Occupational Licensing (POL) Bureau moved to new quarters downtown taking one AT&T 3B2 computer system.

During the biennium, the Video Gaming Division was transferred, with its computer system, to the Department of Justice.

Goals

The POL move limits that bureau's expansion and prevents the rest of the Department from using any excess capacity on POL's computer. If a Department of Transportation (DOT) is created, the subsequent transfer of the Transportation Division to the DOT will free some capacity, but not enough to obviate the need for more or larger computers. The number or capacity of computer systems should be increased to handle anticipated growth and the reduced overflow capacity.

The Department plans to upgrade its main system to include fewer, more modern computers with lower maintenance rates and a reduced level of complexity. This upgrade will reduce maintenance and personnel costs and personnel time.

Better training and more usable software will increase the effectiveness of the system.

FAMILY SERVICES Accomplishments

During the current biennium, the Department of Family Services (DFS) has installed a LAN in the Governor's Office on Aging, bringing the number of departmental LAN's to three. Several additional standalone PC's have been installed in field offices and institutions and the central office network has been expanded.

The following PC database applications have been implemented:

- Small-item inventory system for Mountain View and Pine Hills Schools.
- Case management and resident accounting system for Mountain View and Pine Hills Schools.
- Registration system for the annual Governor's Conference on Aging.
- Information and referral tracking system for the Office on Aging.
- Tracking system for the local providers of aging services.

Goals

After analysis of the current mainframe client database system, which is shared with the Department of Social and Rehabilitation Services (SRS), it appears that the best option for improved client tracking is the development of a new mainframe management information system. Federal mandate requires that additional foster care and adoption information be captured by 1993 to avoid financial penalties. The data currently captured represent less than 20% of the total that will be required. Also, State Legislative mandate requires that improved data

In addition, a tracking system for juveniles within Interstate Compact is under development.

The planned PC applications for foster care home placement and tracking, provider licensing, adoption referral, and aftercare case management will be incorporated into the new management information system described below.

Fax machines have been installed in the central office, institutions and most regional offices. The Director and Deputy Director also use the State mainframe electronic mail system. Telecommunications and electronic mail have not been implemented in all locations because of the high cost; however, the Fax machines partially meet the interoffice communication need.

Online SBAS and pre-payroll have been implemented in the central office and Mountain View and Pine Hills Schools. The Department has opted to use the State mainframe P/P/P system rather than develop a PC based system for personnel reporting.

become available on the children and families being served, services received and the outcome and adequacy of those services. A preliminary cost analysis is underway. Given sufficient funding and resources, the requirements analysis could be completed by the end of FY92 and the system implemented by the end of FY94.

The Department is considering the feasibility of developing a Day Care Information System in conjunction with SRS.

FISH, WILDLIFE AND PARKS Accomplishments

Through centralization of systems support, the Department of Fish, Wildlife and Parks (FWP) provided inter- and intra-departmental training and support statewide for mainframe systems, micro-mainframe systems and communication. This training and support included network utilization, packaged software (WordPerfect, Lotus, etc.) and in-house developed software. Equipment acquisition, installation, and inventory control services were provided as well. The lack of regional personnel available for training prevented planned training in basic, on-site system support in each region.

An additional 60 microcomputers were acquired and installed this past year, increasing the number in use to 240. Eighty-five users statewide received basic microcomputer, WordPerfect, and Lotus training.

The State mainframe and the Helena office network were heavily utilized. Data and word processing resources are available to virtually all FWP employees. The Helena-headquarters-based Novell network and gateway allow the Department to use the new automated SBAS functions, the Executive Budget systems, and the new Payroll and Personnel systems. These

systems improve productivity by reducing manual controls and paperwork. Staff can share high quality printers, schedule regular backups, and upgrade to new software versions with ease.

The Law Enforcement Division has enhanced its ability to track licensing violations by accessing up-to-date information on the sportsmen database. This system was developed at the MSU computer facility in Bozeman. PC's equipped with modems allow game wardens statewide to query the system regarding both current and prior year license purchases.

The Department completed work on existing Geographic Information Systems (GIS's) and reviewed current geographic information and systems with a consolidated and enhanced GIS as its goal. The result of this review was a recommendation that a new system be developed to consolidate and replace the existing ones.

The Design and Construction Bureau is using CADD for its desktop publishing projects. The planned purchase of a desktop publishing system was delayed by the lack of available, trained personnel to operate the system.

Goals

The Department plans to develop microcomputer applications to meet user requirements such as regional license sales, game damage control, and vehicle inventory.

A committee has been established to oversee the development of a department-wide GIS that will interface with other GIS applications in state government. A pilot project will inventory a Wildlife Management Area and apply the results to a research problem. Options for expanded GIS capabilities will be evaluated.

A new Budget Allocation system will improve budgeting efficiency, accuracy, and timeliness.

The purchase of a desktop publishing system will permit improved design and reduced publishing costs of pamphlets, brochures and reports.

Regional office and headquarters staff will continue to receive training and support. Additional training will increase the efficiency of each employee.

The Department plans to continue improving the communications network between regions and headquarters as well as among regions.

GOVERNOR'S OFFICE Accomplishments

The Executive Office now uses a Token-Ring PC network which links most Governor's Office and Budget Office staff. Networking has allowed the Office to streamline procedures for handling the tremendous volume of correspondence that flows through the Governor's Office daily.

Participation in ISD's Electronic Mail Pilot Program has improved communication between Governor's Office staff and other State government departments.

The Lieutenant Governor's Office has continued to refine the database system that tracks the selection of appointed board and commission members.

The Office of Budget and Program Planning (OBPP) has increased its budget analysis capabilities through a blend of networking, personal computers and mainframe computing. Ongoing system enhancement and maintenance accomplishments include: automation of the budget submission process; automation of fiscal note processing for the Department of Revenue and the Governor's Office; and the establishment of basic emergency plans and backup procedures.

Every OBPP staff member has access to a desktop computer linked to an office-wide network. Use of this technology is a vital part of overall OBPP performance.

Goals

The Office plans to refine office procedures and training programs to use the capabilities of the PC network and electronic mail more fully.

process; automation of interfaces between SBAS and the Appropriation and Revenue Estimate Systems; improvement of automated procedures for acquiring appropriation and revenue estimate data; and complete automation of fiscal note processing.

The Office plans to meet the pressing need for a more secure network, including a tape backup system, because the office-wide network has become critical to operations.

HEALTH AND ENVIRONMENTAL SCIENCES Accomplishments

The Department of Health and Environmental Sciences (DHES) has installed three LAN's to connect all Department computers, using Novell Netware 386 version 3.00. Currently, these LAN's support approximately 220 personal computers. A 40-user gateway connects the Department's LAN's to the State's mainframe computer.

The professional data processing staff was increased from one to three persons to meet software and network support and documentation goals.

Continuing to promote efficiency and effective communication through standardization, the Department has established WordPerfect as the standard word processing software, Advanced Revelation as the standard data base software, and Lotus 2.2 as the standard spreadsheet software used by all employees.

Goals

The Department has the following information and communication goals:

- Continue to coordinate data processing and standardize the Department's software, hardware and documentation.
- Provide in-house software and equipment maintenance and update.
- Provide the technical hardware and software expertise to manage the Department's networking requirements.
- Automate all manual tasks that can be done more efficiently by computers.

To accomplish these goals, the Department must ensure adequate resources and training. Use of all available resources, both State and Federal, will assist the Department in updating equipment and software to current standards. An increase in the central data processing staff is needed to meet LAN operation, programming, and equipment maintenance goals.

All users must be trained in the correct use of computers and software, including all standard software packages. The data processing staff requires training to maintain the technical expertise necessary to operate the Department's LAN's.

HIGHWAYS Accomplishments

The Department of Highways initiated Stage Two of its long range Information Systems Plan. This stage involved adding the Butte district office to the VAX-based departmental computer system through the extended Ethernet wide area network. The Butte office installation is complete and the final step of Stage Two, the addition of the Bozeman office, has begun.

District office systems were upgraded and improved as follows:

- CADD capabilities were added in all district offices.
- The district offices were provided online CICS access to the Maintenance Management System for monitoring and reporting.
- An online CICS claims entry and edit system was developed and implemented for all offices. This system supports the Department's cost accounting requirements as well as those of SBAS.
- A budget development system was implemented using LOTUS 3.0 that enables the Department to generate budgets at the third level by responsibility center and program. It interfaces with the automated budget submission package developed by OBPP.

A PC-based construction estimate and change order system was tested and implemented in four of the Department's five districts.

A SBAS monitoring and forecasting application was developed and implemented on the departmental computer system, using the ORACLE database management system.

A departmental project management status reporting system was developed and implemented on the departmental system, using ORACLE. This system allows each of the Department's Preconstruction and Right-of-Way management units to monitor their assigned work activities on highway projects.

The Helena headquarters Word Processing Section converted to VMS WordPerfect on the departmental computer.

Calendaring and VMS mail systems were added to the departmental computer system for the Helena headquarters. The Department's district and area offices were provided dial-in access to VMS mail.

HIGHWAYS Goals

The Department of Highways will complete the long range Information System Plan. This will involve bringing the remaining district and area offices into the office automation environment. PC's, terminals, VAX computers, CADD computers, workstations and the mainframe will all be tied together through the extended Ethernet wide area network. The IBM Series/1 computers and word processing Displaywriters will be phased out completely. Transaction systems including stores inventory control, equipment usage, shop work orders, maintenance management system entry, and payrolls will be upgraded to the VAX or mainframe environment.

Global Position System (GPS) receivers will be used for highway surveying. GPS is a satellite based measurement system capable of measuring to centimeter precision anywhere in the world. GPS will greatly reduce surveying time and manpower requirements.

CADD work stations will be added for training, road design, and right-of-way design.

A bar coding system will be instituted for taking fixed assets inventory. The fixed assets system will be converted from the mainframe to the departmental computer system. The new system will permit online access and update.

Electronic communications with the Federal Highway Administration (FHWA) will enable the Department and FHWA to access each other's electronic files (if authorized) and to transmit and receive reports.

Enhancement of the Gross Vehicle Weight (GVW) International Registration Prorate system will allow online access and streamline some data entry processes. The system will also be expanded to handle two years of information instead of one.

HISTORICAL SOCIETY Accomplishments

All of the Historical Society's program offices have installed computers for word processing, office automation and the specialized applications described below. This automation has improved work flow, efficiency and productivity.

The Library completed installation of its Novell network including a file server and seven workstations. Data Trak software is used in collection control, cataloging, acquisitions and accessing, and the Library is converting serials check-in and control.

The Archives completed selection of equipment and software to begin converting to automated aids to information search and retrieval. This system should be in place with four terminals by the end of the biennium. A collections data base has been developed and complete automated access to archival collections at the collection level will be available by the end of FY92.

The Historic Preservation Office has networked its computers and uses the system to access and maintain the 12,000 record cultural resources data base which was recently compiled.

The Business Office uses its computers to link to State payroll systems as well as for word processing and accounts receivable.

Goals

Additional PC's will be needed as workloads in all programs exceed current hardware capacity. In particular, additional PC's are required in director's and business offices and the Museum to improve efficiency in word processing, list management and office automation.

The Society plans to research and acquire the proper desktop publishing hardware and software for publications design, preparation of exhibit graphics, and production of publications such as brochures and technical leaflets.

An automated collection control system will be installed in the Museum to assist with cataloging, research and retrieval.

The Historical Society will continue to pursue private funding to automate functions related to collecting, organizing, administering, preserving and presenting to the public Montana's historical and cultural heritage.

INSTITUTIONS Accomplishments

A major rewrite of part of its MIS programming provides the Department of Institutions with better data capture and reporting of revenue concerning residents at various campuses.

The Department undertook the following system development tasks during the biennium:

- A resident injury data capture and reporting system was implemented at various department campuses.
- A mechanical restraint data capture and reporting system was implemented for the Montana Developmental Center.
- Automated individual treatment program tracking and reporting system is in the final test phase at Montana State Prison.

- Electronic form 1099 interest reporting was developed for the resident account system.

Two federal grants were secured to study, design, develop, and implement systems in the alcohol/drug and mental health areas that will comply with federally defined standards.

The Department installed online SBAS and the DOA's pre-payroll system department-wide. The ability to transfer data between PC's and the System/38 was greatly enhanced. A data processing help desk was created and a call/problem reporting system was developed and implemented.

Goals

The Department plans to increase telecommunications line speed. Due to lack of appropriated FY90-91 funding, this project was not completed and is being carried into FY92 and FY93 as a goal.

More data processing function, in terms of hardware, software applications and connectivity, is needed for the Department's local and remote sites. The installation of PC's and LAN's will provide better data and hardware resource sharing.

All probation and parole offices will be brought online to the System/38 and the Adult Correctional Information System (ACIS).

The Department plans to provide more training and education for end users.

The Department will complete the federal grant projects described above.

JUDICIARY Accomplishments

Through the use of personal computers, the Montana Supreme Court has moved to a completely integrated word processing, case management, accounting, and budgeting system on a LAN within Helena Supreme Court offices.

The Supreme Court has published statewide standards for court automation in an effort to establish software and hardware uniformity within judicial offices.

The Office of the Court Administrator has developed, installed, and tested a PC based case management and random jury selection system at the general trial and limited jurisdiction court levels. When fully implemented, this software will automate a significant number of time-consuming manual processes.

Goals

The general goal of court automation is to provide the modern tools necessary for the effective and timely management of court business. Immediate goals include further installation of and training on existing court case management software in general trial and limited jurisdiction courts.

Long-range goals include development of other court case management systems and the integration of the Statewide Judicial Information system with the PC-based court case management software.

JUSTICE Accomplishments

In the past two years, the Department of Justice has focused on expanding information on the mainframe and micro platforms. At the Attorney General's office, a LAN has been installed that links the attorneys with all other staff. This has helped increase the efficiency of both the legal staff and the secretarial pool.

The law enforcement telecommunication network gave nine new agencies access to the wealth of information available through the Criminal Justice Information Network (CJIN) system. In addition, the Department replaced all network terminals with intelligent workstations. These workstations offer local processing capabilities such as interactive training, statistical data collection, and transaction logging.

The Board of Crime Control is using the CJIN in place of time-consuming paper forms and mail service. This network allows more timely and accurate collection of crime statistics in Montana.

A commercial driver licensing program has been completed to meet the Federal mandate that

commercial drivers may be licensed in only one state. With this software, the Department can check a national data base to determine whether a commercial driver license applicant is licensed or has had a license suspended or revoked in any other state.

Because Federal legislation required the implementation of the commercial driver licensing program, its completion had higher priority than completing the interactive automated vehicle accident record system. Sufficient funding and resources were not available for the completion of both projects.

In legislation to be presented to the 1991 legislature, the Department of Justice is proposing to centralize the vehicle registration and titling within the Department. This proposal represents a change in direction, thus in system development goals for registration and titling functions, which are currently handled at the county level.

Goals

Over the next two years, the Department of Justice plans to use several new technologies if the funding is appropriated. Montana has been invited to join a western states' network that provides automated fingerprint search capabilities for identifying possible suspects in criminal cases. This network would allow Montana law enforcement agencies to compare fingerprints obtained at a crime scene against a file of more than two million sets of fingerprints.

The Motor Vehicle Division is proposing to use bar coding technology on vehicle registration renewal notices to reduce information input time. The renewal card would be returned directly to the Registrar's Office where it would be passed through a reader to update the file.

A receipt would be generated and returned to the owner.

The Motor Vehicle Division is also proposing the use of magnetic striping on the driver license card. This would expedite the renewal of driver licenses and could have many other uses in State government.

The FBI has recently received funding for major enhancements to the National Crime Information Center (NCIC) system which users of the CJIN use extensively. These enhancements include image transmission and extended national file search capabilities. The Department intends to take advantage of these changes as they become available.

LABOR AND INDUSTRY Accomplishments

The Department of Labor and Industry's Job Service completed the preliminary program modification for the transition from a distributive statewide system to a centralized mainframe environment. The first full-scale testing is scheduled for December 1990 through January 1991. The results will dictate whether the Job Service can continue migration of separate databases to the mainframe. Data from earlier tests indicates that a centralized database would provide statewide access to job or applicant information--for job seekers or employers--while positioning the Montana Job Service to access nationwide systems. The Job Service converted previous data entry functions to a PC based system.

The Unemployment Insurance (UI) Division replaced dumb terminals with PC's that can access the mainframe UI Benefit and Tax Accounting Systems. The Division continued systems improvements for electronic fund transfers to and from the U.S. Treasury and to a nationwide locating service. An automated system now draws UI claimant data from mainframe accounting files for State legislative research and Federal Equal Opportunity review. A desktop publishing function was developed to create UI forms, training materials, newsletters and various other public documents. The Division also implemented an automatic telephone system that calls UI claimants after hours to respond to problem claims.

The Centralized Services Division developed basic computer connectivity architecture for the agency including a plan for phasing in separate functional LAN's. Three of six LAN's are in operation and a remote bridge connects a distant office with the state mainframe computer and the agency network. The Division supported a major departmental reorganization with relocation of several functional groupings of PC's. The data entry function was decentralized to user organizations. The agency's

centralized word processing function was transferred from DisplayWriters to WordPerfect 5.1 on PC's and numerous PC database applications were developed.

Division administrators are preparing strategic operating plans for the Department. Centralized Services will use these plans to develop an automation strategy.

Centralized Services is completing the updating of SBAS documents from PC's to the State mainframe and the uploading of all payroll data to the State Auditor's Office. The Division is also investigating system enhancements available through the use of Computer Aided Software Engineering (CASE) tools.

The Centralized Services Division provided computer training for the Department and expanded the Personnel and Training database to provide additional management reports. The automation of specifications for forms preparation has significantly reduced ordering times. Systems have been developed to track federally mandated cost allocation (time distribution) and to record and prepare accounts receivable transactions.

The Employment Relations Division expanded its LAN to serve all staff, sharing critical software and hardware resources. The LAN was reestablished in a new location with a remote bridge connection with the mainframe and department staff. Several new PC database applications were implemented to support functions assumed as a result of the splitting of the Worker's Compensation organization.

The Human Rights Commission acquired eight PC's and a portable "laptop" for hearings officers to use when travelling. One PC has a modem, allowing mainframe connection for E-Mail, Personal Manager and electronic transmission of documents within State government.

LABOR AND INDUSTRY Accomplishments

The Human Rights Division participated in the Commissioner's communication and scheduling project using DISOSS. A telephone "hot line" was installed to improve service to the public.

The Legal Services Division upgraded PC's, installed a LAN server and acquired laserjet printers. WordPerfect software was upgraded to 5.1 and PC operating systems to DOS 3.3.

The Research, Safety, & Training Division (previously the Employment Policy Division)

automated statistical data transfer to and from other states, using PC's. For key staff, intelligent workstations were linked to the mainframe computer via the agency network. A mainframe Mass Layoff Statistics (MLS) system was developed and is being used as a model in other states. The Division installed a PC based Management Information System to track and report on the Job Training and Partnership Act (JTPA) program. A desktop publishing function was established.

Goals

The Job Service will continue to migrate software programs and databases from the distributed minicomputers to the State mainframe. Database centralization goals are to provide statewide access to job applicants and employers and to speed up computer services to local office staff significantly. The present five minicomputers are nearly obsolete and very slow compared to the State mainframe. All present, outmoded terminal equipment needs to be replaced with intelligent workstations to help improve placement and unemployment insurance services to the public over the next decade. PC's will aid local office staff in their planning, budgeting, and reporting. Word processing software will be used instead of typewriters to test applicants' typing abilities. The Division will explore the feasibility of developing a corporate database for Job Service systems.

The Unemployment Insurance Division will investigate converting paper documents to electronic images for easy, quick reference by multiple users. The Division will explore extracting and downloading mainframe data to PC's for accounting and reporting functions. Remote communications to the State mainframe will be implemented for field auditors' use of portable

computers. The Division plans to continue enhancing the tax and benefit accounting systems. The development of a corporate database for UI tax and benefit systems will be considered.

The Centralized Services Division plans to continue LAN development and explore PC applications for project management, systems design and analysis. The programmer/analyst PC's should be upgraded to accommodate larger software packages and allow enhancement of staff technical and analytical skills.

The Division will investigate an automated link for ordering directly from Central Stores. Accounts receivable invoice production will be integrated with accounts receivable recording in SBAS and daily accounting transactions will be downloaded from SBAS mainframe files to PC's. The purchasing and inventory systems will be expanded to include warranty, maintenance, and other critical information. The manpower payment system will be integrated into SBAS and the Auditor's warrant writing system to reduce the workload and increase report accuracy. Computer training will be offered to staff, based on individual needs.

LABOR AND INDUSTRY Goals

Central Services will assist the other Labor and Industry divisions in pursuing automation grant monies and will plan the departmental corporate database development to meet evolving business needs.

The Employment Relations Division will continue staff training to maximize use of existing automation. A move from the current LAN operating system to OS/2 will allow better management of the batch processing of critical worker's compensation insurance data in the State mainframe database. The Division plans to automate the newly defined regulatory function over state insurance carriers and to reduce paperwork and hard copy file storage requirements, particularly in workers' compensation insurance regulation.

The Human Rights Commission plans to acquire PC's for the remaining three staff members, install a LAN to allow file sharing among staff and make the NCR database available to LAN users. A case tracking system will be developed specifically for housing cases. The Commission plans to acquire a facsimile machine.

The Legal Services Division goals are to upgrade PC's to more powerful, faster machines and to increase user competency with the PC's.

The Research, Safety, & Training Division will add PC's to the network based on functional needs. A PC-mainframe-linked system will be developed to process state statistics for Federal reporting. Installation of the new MIS will allow data collection and reporting on the Montana Job Training programs. PC applications will be developed for the following:

- Population survey analyses.
- PC-aided telephone data collection system in support of Bureau of Labor Statistics (BLS) contracts.
- A boiler, crane, hoist, and blasters' licensing system.
- Inspection and miners' training activity reporting systems.

Remote call-in capability will be implemented for field staff. Staff training will enhance individual competency with PC's.

LANDS Accomplishments

The Department of State Lands (DSL) formed a Trust Land Management (STLM) System Development Committee to oversee work on that system. The committee recommended that the remaining sections of the marketing business function be completed before the other eight business functions were addressed. Accordingly, the following marketing sections are being added to the system by the end of FY91: agreement stipulations and problems; potential land use applications; actual land use applicants; advertising guidelines, restrictions, and media. An additional 30 persons received training on the Trust Land Management System, and data integrity procedures were tightened.

The Mineral Leasing Bureau is using the Department's CAD system for geographic tracking of oil and gas activity on Trust Lands.

The Reclamation Division implemented a PC-based system that permits centralized records management of mining regulatory compliance. The system tracks applications and permits and actions associated with them. Data capture includes permit stipulations, history, issue dates, renewals, expirations, and the reclamation bonding process.

The Reclamation Division's Coal and Uranium Bureau is obtaining a Geographic Information System for use on the Powder River Basin Project.

ISD has rewritten the Forestry Division's mainframe Fire Protection Assessment System. The

system permits online access from a portable PC that is taken to each county courthouse and used for ownership record updating. This revision eliminates a tedious manual update.

To address its forest management and planning goals, the Forestry Division began using an Integrated Resource Information System (IRIS) with GIS capability. This system is being developed in conjunction with the University of Montana Forestry School. The Division has also purchased a program to store data and perform calculations on timber cruise.

The Department installed 50 new microcomputer systems, for a total of 136. Four LAN's were installed: two in Missoula--one covering much of the Forestry complex, the other for fire management--and one each in Helena and Kalispell. The Helena LAN is being extended this year to cover another floor of the USF&G building.

The Department's DP staff continued to train people in network operation, E-Mail, word processing, budget planning and analysis, and data management. The Department upgraded WordPerfect, Lotus, and Professional File software to the latest releases and added R:Base and Paradox database software to the Helena LAN.

The six area offices were connected to the State's telecommunication network and provided with DISOSS E-mail and file transfer capability. A network of telefax machines now links Department offices down to the land office level.

LANDS Goals

The analysis and planning for the Internal Administration and Service/Assistance functions of the STLM system will be completed and additional functions of Regulatory Compliance System will be implemented.

The land inventory, evaluation, development, and classification subfunctions of the STLM system will be developed, assuming the availability of funds.

To further the overall goal of developing a forest management and planning system built onto a GIS, several timber analysis models will be added to IRIS. The purchase of additional microcomputers will allow the Department to automate the planning process--manage open cut mining information, onsite fire suppression data, and data for crop checking, timber scaling, range evaluation, and graphics--as well as to

automate purchasing and budgeting. Management plans also include the acquisition of an automated timber model to assist with timber sale analysis.

Air Operations and the Central Land Office will be connected to the Helena LAN, and the LAN's in Helena and Missoula will be interconnected. The twelve unit field offices will be connected to the State's telecommunication network and provided with DISOSS E-mail and file transfer capability. The Missoula LAN will be extended to another set of buildings on the Forestry complex.

Establishing a central budget for maintenance, replacement and testing of information processing equipment, and for communication services will improve computer systems management.

LEGISLATIVE AUDITOR Accomplishments

The Office of the Legislative Auditor expanded its office-wide LAN to include its portable microcomputers and installed modems in them. The Office also purchased portable printers for use at the audit site. The Office expanded the existing network to include additional workstations for a total of 25 microcomputers with a capacity of 31.

During the past two years the Office gained experience in auditing the information systems of the various state agencies. Other improvements in the use of the office network enhanced auditor productivity, improved the quality and efficiency of audit work, and improved the quality of the office's audit reports. With the adoption of a new report format, word processing activities became more efficient.

Goals

The Office of the Legislative Auditor plans to implement the Legislative Branch Computer System Planning Council's Office Automation Plan. This plan recommends that the Legislative Branch take the following action:

- Implement a branch-wide integrated LAN.
- Centralize File Server management and support.
- Use a central support staff for branch-wide office automation.
- Select and use similar software packages.
- Establish a minimum hardware configuration for workstations.

- Adopt equipment replacement criteria and establish a standard equipment replacement plan.
- Jointly prepare and present its budget request for office automation.

Other office goals include expanding the office's capabilities on the State mainframe, attaching to the State backbone (connecting the office network to the mainframe and other agencies) to make the office network more accessible to audit staff working in the various agencies, and expanding the use of microcomputers for agency financial analysis.

LEGISLATIVE COUNCIL Accomplishments

The Bills, Annotations, and Session Law systems were converted from the ALTER mainframe package to TextDBMS, a new release of ALTER rewritten in PL/1, running under CICS. This package meets mainframe standards.

The preparation of camera-ready copy for the Legislative Council's major publications was converted from a mainframe package, TIPE, and an APS-5 photo typesetter to the PC-based Ventura Publisher and a 1000 x 1000 dot-per-inch laser printer. The result was more than 50% savings in creating camera-ready copy.

The full text of the Montana Code Annotated (MCA) was placed on CD-ROM. This electronic storage makes re-keying unnecessary when part of the MCA is used in briefs, memos, reports, and bill drafts. It also provides a means of searching the MCA text for specific words or phrases.

In keeping with the goal of moving to one word processing/text database management system, the Legislative Council has moved the Daily Journal and bill draft documents to WordPerfect.

Several WordPerfect Macros and Basic programs were developed to allow the Journal Clerk to prepare the Daily Journal on a PC located on the rostrum. A savings in FTE will result because word processing staff will not be needed to enter the text of the journal.

A system was developed using WordPerfect Macros to track the bills during the drafting stage. Since every workstation on the network has access to WordPerfect, the status of a bill can be checked from any workstation. This system replaces the previous hard copy log.

There were several upgrades to the Senate Vote System: the system is now controlled by a PC instead of an IBM Series 1; the message display board uses new LED technology; and the vote controller portion of the system was replaced.

This replacement should eliminate the occasional lock-ups when a vote was taken.

The Legislative Council Library cataloging system was automated on a PC, resulting in more efficient use of staff time and library space and greater information search capability. Three compact disk (CD) drives were added to the library PC, and the library has several databases on CD and access to several catalogs on CD.

The following were major LAN improvements:

- The Legislature began managing the legislative branch network as one LAN instead of individual agency networks. A Computer System Planning Council was formed to oversee this process as well as to plan for all future data processing.
- Workstations were installed for all staff that could benefit from their use. The Council now has a total of 50 workstations.
- The ALTER/TextDBMS word processing staff converted from 327X terminals to PC's as part of the change to processing Bills on WordPerfect instead of TextDBMS.
- Several legislative branch agencies were converted to the OS/2 LAN Server operating system. The plan is eventually to have the whole Legislative Branch on OS/2 LAN Server.
- A dBase Education/Training Tracking System was developed to maintains computer-related class information and schedules and Council staff class schedules.
- A system was developed for comparing the actual text of the MCA on the TextDBMS system with the text of amendments in bills. This process will save in proofreading and help ensure the accuracy of the enrolled bill text.

LEGISLATIVE COUNCIL Goals

The Legislative Council will continue to move toward one word processing/text database management system. The office uses WordPerfect for its correspondence and TextDBMS for session functions such as bills. The enrolling and engrossing of bills, the creation of Session Law and the MCA update process are under evaluation for transition to WordPerfect. Several technical details have to be worked out before that transition can be made. Once it has been made, there should be cost savings in user support and software maintenance fees.

The conversion from ALTER to TextDBMS will be completed. The MCA update currently performed on the mainframe requires conversion unless it can be done on networked PC's using WordPerfect. The Legislative Council is conducting additional review to determine the best course of action.

A computerized redistricting system will support the reapportionment and redistricting process.

An Electronic-Mail System is needed for the Legislative Council that meets both Legislative Branch needs and Executive Branch standards. The Legislative Branch communicates with all agencies of state government; therefore, any package selected for E-Mail must communicate well with the package selected by the Executive Branch. Implementation will follow completion of a positive evaluation.

The LAN maintenance and upgrading will continue. Tasks include replacing obsolete workstations, upgrading software to the current releases, insuring adequate tape backup and UPS support for all file servers, upgrading the LAN software as necessary, and upgrading the file servers with memory and hard disk as necessary.

A Database Server on the LAN will enable movement of the existing database systems to it.

Several dBase applications can be better managed using an overall agency database rather than individual databases.

Depending upon resource availability, staff will investigate improving the public access features of the Bill Status system.

A training function will be maintained for the data processing and user staff.

An in-house data processing directional committee will be responsible for the following:

- Developing and implementing standards and procedures for security, back-up and disaster recovery, naming conventions, etc.
- Evaluating and planning for hardware and software purchases, implementations, and training.
- Evaluating and setting priorities for new data processing projects.

The Legislative Branch Computer System Planning Council will continue to provide Branch leadership in automation planning.

Product development and marketing of Legislative Council publications on CD-ROM will continue.

Electronic voice mail will be evaluated as a means of improving communication among legislators and between legislators and state government year round.

The office will evaluate how to integrate the distribution of legislative information across various media including a state bulletin board, Big Sky telegraph, teleconferencing, and any similar systems that may be available.

LIBRARY Accomplishments

Each Library Development Services staff member has a microcomputer; two were upgraded with 20MB hard disks. The Coordinator's PC has an internal modem and PROCOM software for accessing Big Sky Telegraph, ALANET, and other electronic bulletin boards.

Library Development and the State Library Commission's Technology Committee worked on the first Rocky Mountain Computer Expo, which the State Library co-sponsored. Three library-related technology workshops were scheduled for one day of the Expo.

Library Development assisted the Library Services Advisory Council and the State Library Commission to develop a project funded by a Library Services and Construction Act (LSCA) grant to install at least 12 LaserCat stations in Montana's libraries.

The State Library Commission has approved the payment of \$200,000 from LSCA grant funds to the Western Library Network (WLN, Inc.) for Montana's fee as a founding member of this new not-for-profit library network.

The Information Resources Program staff catalogued new state publications and entered them into both the WLN and the OCLC databases. Information Resources provides Montanans machine-readable catalog records, electronic access to state publications, less chance of duplication of the cataloging process within the State, and nationwide library access to State publication cataloging records. By entering--and encouraging other libraries to enter--machine-readable location records into the WLN, the Library continues to build a statewide multi-library database.

Information Resources staff received extensive training in the Linked Systems/Name Authority Project from the Library of Congress. The Library's participation in this cooperative system

will make Montana's name authority records available electronically nationwide.

Information Resources participated in both the Statewide Electronic Bulletin Board and the Big Sky Telegraph Bulletin Board. Information Resources staff serves on the Advisory Committee for the Electronic Bulletin Board that ISD has been operating since October 1989.

Information Resources staff continues to work with or on the Automation Group that the Montana State Librarian established October 1, 1989, to examine the status of automation in the State Library, list deficiencies and develop recommendations.

The Montana State Library for the Blind and Physically Handicapped (MSL f/t BPH) has implemented the Reader Enrollment and Delivery System (READS) software package. The READS System software gives MSL f/t BPH a totally automated circulation system, collection catalog and inventory control system. Patrons can select books by subject or title; the system prepares mailing labels with the appropriate circulation information and books are shipped when available. Various reporting interfaces allow the library to request federal statistics, patron information, and collection and equipment information.

The MSL f/t BPH also uses NLSNET, a national online network connecting the Library with the Library of Congress/National Library Service and all state, regional and subregional libraries for the Blind and Physically Handicapped. All federal statistics and reports and some interlibrary loan requests are transmitted via NLSNET.

A recently developed application allows statistical manipulation of locally input data and long range planning. For example, the library can use this program to identify where patrons are

LIBRARY Accomplishments

located throughout the State, what items are most frequently requested, and which equipment requires frequent repair.

The Montana Natural Resource Information System (NRIS) is a program created by the Legislature to make information and data sources on Montana's natural resources easily accessible. Serving business and industry, government agencies, and private citizens, NRIS operates a clearinghouse and referral service to link users with the best sources of information. NRIS helps coordinate among agencies and organizations that collect, manage, or use the same types of natural resource information to prevent duplication of effort and promote information sharing. NRIS provides assistance in systems design and in developing standards for the collection of new data to ensure quality and compatibility. NRIS has four main components:

- The Montana Natural Heritage Program maintains a computer-assisted inventory of

Montana's biological resources, emphasizing the locations of rare or endangered plant and animal species and biological communities.

- The Montana Water Information System is the starting point for locating water resources information in Montana, such as data on surface water, groundwater, water quality, riparian areas, water rights, climate data and more.
- The Montana Geographic Information System conducts projects and provides technical assistance for statewide GIS projects and to agencies developing in-house GIS capability. NRIS inventories data available for GIS applications and coordinates GIS data standards and sharing throughout the state.
- The Montana Natural Resource Index (MNRI) is a geographical and subject area indexing system for published and unpublished data sources.

Goals

Library Development plans to establish networks as effective alternatives to meetings and as an information resources for all libraries in the state concerning library issues, employment opportunities and state-of-the-art techniques in Library Science. Other goals are to coordinate library automation efforts in the State, assist libraries in purchasing computer equipment and conduct statewide classes in computer technology.

Library Development will investigate the cost and feasibility of installing a desktop publishing system for the Montana State Library Directory, the State Library News and various informational booklets and pamphlets.

Information Resources goals are to offer users within state government and throughout the State more reliable access to current Montana state agency publications and to facilitate access to government information and state agency publications. These goals will be accomplished by maintaining current cataloging status for all new state publications and increasing FTE in state publications programs for retrospective conversion of older publications and for making agency contacts so all new state publications are included in the State Library's collection(s).

LIBRARY Goals

Another Information Resources goal is to plan for an integrated system for the Montana State Library which would automate such functions as circulation, overdues, periodical check-in, on-site and offsite public access catalogs, current awareness database, and so forth. Automation of such routine functions will provide State employees and other Montanans quicker, more efficient access to information.

Goals of the MSL f/t BPH include improving system reliability, adding workstations, replacing GNet, adding information on locally produced books and magazines, and entering all equipment data. A continuing objective of the MSL f/t BPH is the development of a public access system that would enable patrons to dial, via modem, into a direct link to READS and input requests. Use of CD-ROM products with large typeface printers for the visually disabled and speech for the blind is a long term goal that would allow patrons access to a broader range of current reference and nonfiction materials.

NRIS has a target for its data clearinghouse and referral service of responding to more than 400 data requests per year on behalf of natural resource data users. NRIS will also develop and maintain its four major projects. New initiatives include the following:

- **Montana Water Information System**

Development of the Montana State Water Plan, including an early-warning drought monitoring system.

Refinement of the Montana Interagency Stream and Lakes Database, as part of ongoing support to the Montana Rivers Information System, on behalf of FWP.

Groundwater monitoring and characterization studies conducted by the Bureau of Mines and Geology.

- **Montana Natural Heritage Program**

Management work on several databases, including: Element Tracking, Element Occurrences, Managed Areas, Source Abstracts, Vertebrate Characterization Abstracts, and Sensitive Species Lists.

Several new botany, ecology, and zoology field surveys on sensitive species.

- **Montana Geographic Information System (GIS)**

Energy Generating Resources Database, with DNRC.

Powder River GIS, with DSL.

Clark Fork Water Quality Project/-DHES-Water Quality Bureau.

Clark Fork Basin Superfund GIS Project/DHES Solid and Hazardous Waste Bureau.

GIS Training to state agency employees.

- **Montana Natural Resource Index**

Working with the State Library's Information Resources Division to integrate document indexing activities.

New agency indexing projects at the DHES, DSL, and FWP.

LIVESTOCK Accomplishments

The Department of Livestock's major project during this past biennium was to prepare for the 1991 rerecord. Once every 10 years the Department re-registers all 63,000 brands in Montana and calendar year 1991 is the next rerecord year. The mainframe based Livestock Brands System was implemented prior to the 1981 rerecord when the technology for capturing the actual brand image on computer was in an early development phase and the equipment was prohibitively expensive. With the technology advances and price decreases of the past 10 years, the Department decided to implement, prior to the 1991 rerecord, a system for capturing the brand image on computer.

This project has involved the use of sophisticated hardware and software on both the PC and mainframe platforms. Systems include a PC based graphics package to draw most brands, a scanner to read in the most difficult brands, a mainframe based graphics package to display the image on a monitor, and the new mainframe laser printer to print the images.

Within the Brands Enforcement Division, PC's were installed in four more of the brand offices located in the livestock markets around the State. They are linked to mainframe brand files so they have immediate access to the most current information.

A PC based system was developed and installed in the receiving room of the Diagnostic Laboratory Division in Bozeman. The system allows data capture on all samples sent to the lab for diagnostic work. This information can then be augmented by test results as the sample proceeds through the various testing stations at the lab. Two PC's installed in the front office allow staff to retrieve information for phone inquiries or log out samples as work is completed.

PC's have been ordered for bacteriology and a laboratory-wide backbone has been implemented preparatory to the development of PC based bacteriology and serology systems.

A PC based system for tracking and reporting on Montana Health Certificates was designed and implemented for the Animal Health Division. These certificates are issued to deputized veterinarians throughout the State who are responsible for each certificate issued to them. This new system allows the Department to maintain strict accountability for these certificates and to generate reports on the types and numbers of animals moving within and out of the state. Should a disease outbreak occur, this system can provide timely and comprehensive information about the movement of animals.

The Centralized Services Division implemented a new PC based system for tracking and reporting on departmental inventory. The department revamped its inventory tracking such that data on items costing more than \$1000 are maintained on the mainframe PAMS system and all items costing \$50-\$1000 are tracked via the PC system.

A PC based budget status report was also developed. This monthly report shows YTD expenditures as well as year-end projections based on the current rate of spending.

The two Centralized Services LAN's were linked to the Brands Enforcement Division's LAN to increase efficiency and reduce costs.

LIVESTOCK Goals

The Centralized Services Division plans to install a LAN Server and laser printer capable of serving the entire department. Many of the departmental PC based systems have been in place for 1-3 years, in most instances having replaced manual systems. As department personnel have learned what is possible with computers and what is useful, they have identified a series of enhancements. Implementation of these enhancements is a goal in this biennium.

The Brands Enforcement Division plans to change online programs to allow the brand image to be displayed on a PC monitor. The present batch data entry to the Livestock Brands System needs to be converted to an online system that allows inhouse entry of information. Further automation is needed for the brand offices located in livestock markets, particularly in the area of printing tallies and shipper and owner indexes. Also, a PC based system will be designed and implemented to capture and report on all horse inspections in the state.

The Diagnostic Laboratory Division will design and implement PC based applications in two more lab testing centers and a PC based system in bacteriology.

Tracking serologies is a major interest of both the Diagnostic Lab and Animal Health Divisions. A goal of the coming biennium is to plan, design and implement a PC based system with the following features:

- Makes efficient use of Division personnel for data entry.
- Eliminates information redundancy.
- Gives both divisions access to all needed information.

The Animal Health Division plans a PC based system for data capture and reporting about animals being imported into Montana. In addition, the Division plans to install a LAN giving management online access to detailed information.

The Meat, Milk and Egg Division plans to purchase a new PC and letter quality printer for the Meat Inspection program. The Division also plans to install a LAN that allows sharing of information and access to the new printer.

MILITARY AFFAIRS Accomplishments

Over the past 3-4 years the Department of Military Affairs has installed in excess of 350 Federally owned, and approximately 20 State owned microcomputers affecting every unit location and maintenance activity across the State. The Department has standardized hardware and software throughout the organization. All hardware is IBM Compatible, with most of the equipment being Zenith Z-248 systems.

The "Enable" integrated package has been established as the software standard. This package incorporates word processing, spreadsheet, database, graphics, and telecommunications. The Enable package is loaded on every microcomputer owned by the National Guard. Additional specialized software (Word Perfect, Harvard Graphics, etc) is supported as needed on a case by case basis. The Army National Guard and Centralized Services have also established a menu and security software standard, "Secure PC." This package requires a User ID/Password to prevent unauthorized access and provides menus for easy user access to applications.

The Director of Information Management (DOIM), Administrator of Centralized Services, and Facilities Management Officer cooperated in the installation of a Computer Aided Design (CAD) System in the Facilities Office. The organization's architects will use the system to design construction projects.

The Army National Guard began replacing the older Burroughs B-1955 mainframe with a Unisys 5080 in 1989. This process will be completed in 1991.

The National Guard is required to implement numerous information systems designed and developed by the Department of the Army, the Air Force, and the National Guard Bureau. In addition, the Department of Military Affairs has designed, developed, and implemented a number of information systems for its internal use.

Systems Military Affairs has developed and implemented include the following:

- Company Information Management System (CIMS)--Provides reports and products primarily about personnel at the company level. This system is integrated with the Battalion Information Management System (BIMS); information is uploaded electronically to the next higher, battalion-level system.
- Battalion (and Brigade) Information Management System (BIMS)-Is located at the battalion and brigade headquarters and provides information for all units. Current plans call for uploading information from BIMS to the Department of Military Affairs headquarters at a future date.
- Support Personnel Information Management System (SPIMS)--Provides a number of reports and products for the Support Personnel Management Office.

In October 1990, the National Guard converted to a worldwide electronic mail system called NGNET. The system is a federally owned Guard system that operates through the Sperry 5080 located on Fort Harrison. Installation of this system has reduced the cost of electronic mail by 65%. The system currently serves the STARC headquarters in Helena, but is projected to be extended to every unit location statewide.

Military Affairs currently has numerous dedicated data links including those from the Armory to the State mainframe, the Federal mainframes at Fort Harrison, and through the Air Guard in Great Falls to Air Forces systems outside the State. In addition the Department maintains connectivity to the 6th US Army in San Francisco and the Wang VS system located in National Guard Bureau headquarters in Washington, DC.

MILITARY AFFAIRS

Accomplishments

During 1990 the Department began multiplexing data communication lines between the Federal mainframes and the Armory. This technology allows multiple terminals to use one data line simultaneously, reducing the number of data lines required.

Facsimile services are currently available at all battalion and higher level headquarters. These facilities are located in Helena, Great Falls, Billings, Bozeman, Butte, Havre, and Kalispell. In addition, a secure facsimile device is being installed in the Helena Headquarters for transmission of sensitive or classified information.

As a result of the re-organization of the Montana Army National Guard in 1988, the Department of Military Affairs has installed additional small telephone switches in Butte, Havre, and Billings. These switches are used to provide

adequate telephone service to the battalions, while reducing the cost through line sharing.

Because the telephone network necessary to support the National Guard is so complex, an automated system was developed to authorize telephone service; track equipment, circuits, telephone numbers, purpose, etc.; and account for the cost of telephone service by individual number. This system, in conjunction with billing information provided by the Department of Administration, provides a reliable, accurate control.

The National Guard has installed STU-III secure telephone services at critical points throughout the organization to allow classified communication over otherwise unsecured telephone circuits.

Goals

The Department of Military Affairs is continuing to review and upgrade systems as necessary. Its plans include the following improvements:

- Take advantage of the newer 80386 and 80486 microprocessor technology for those systems that will achieve overall cost or time savings from the greater processing speeds.
- Upgrade all Enable software to Enable 4.0 as funding permits. The new Enable 4.0 software package is DOS, LAN, SQL, and UNIX compatible.
- Expand LAN's and Wide Area Networks within the funding available.
- Expand its Electronic Mail system to all unit locations within the State.

The Department will continue to design, develop and implement information systems to support its operations.

The implementation of the Reserve Component Automation System (RCAS) to begin in 1992 will greatly enhance the automated capabilities of the National Guard and the Department. This is a "Total System" approach to automation; one system will address tasks currently performed by a number of varied systems.

The Department is evaluating the installation of additional leased foreign exchange telephone circuits and/or multiplexing to gain capability at lower communication costs. In the future, the Department plans to continue expansion of multiplexed lines if it is cost-effective.

The Department will continue to seek ways of reducing the cost of telephone communications while maintaining or increasing the level and quality of service.

MONTANA ARTS COUNCIL Accomplishments

The Montana Arts Council has installed a LAN in its office linking the Council's Macintosh and PC workstations.

The Council's "Human Resource" database was expanded to include more categories, making it

easier to identify individuals with expertise in various areas for advisory positions to the Council and state arts organizations.

Goals

The Council plans to acquire a modem to send and receive electronic files and faxed documents. At this time, the office has no fax machine and the staff must use the services of an outside vendor.

NATURAL RESOURCES AND CONSERVATION Accomplishments

The Department of Natural Resources and Conservation (DNRC) acquired and set up a cluster of four DEC MicroVAX computers. The cluster is used for word processing, data entry, access to the State IBM mainframe, and small data processing systems such as labels and time-sheets. Ten PC's are attached to the cluster on an Ethernet network providing greater flexibility. PC's and terminals have been purchased both to improve word processing support and for the specific functions described below. Laptop computers were purchased to increase staff productivity during meetings and while traveling. WordPerfect is the word processing package on microcomputers and the MicroVAX cluster.

The Water Resources Division has acquired more DEC terminals and PC's. The additional terminals have enhanced the access to data, primarily water rights records. Detailed data base information on high-hazard dams is being developed. The ability to anticipate and minimize the effects of dam failures and floods is also being enhanced. Sophisticated models of river basins are being developed to account for water sources and water uses and provide more efficient management programs in those basins where scarcity is a recurring problem. New types of irrigation systems, emphasizing both efficiency and effectiveness, are being designed and analyzed. A communication line between the Billings water rights field office and the IBM mainframe was established so the capabilities and costs of this linkage could be evaluated.

The Montana Reserved Water Rights Compact Commission (RWRCC) has expanded its Geographic Information System (GIS) to an IBM PS/2 Model 70, a MacIntosh SE/30, a COMPAQ 386 and a terminal link with the PRIME computer located in the Natural Resource Information System (NRIS) of the State

Library. In addition, a second digitizing tablet and 150 megabyte cartridge backup system have been installed. Data have been entered into the GIS manually through digitization and electronically from other agencies or outside services. The GIS has been used in ongoing negotiations with the Milk River and Northern Cheyenne tribes.

The Oil and Gas Division has obtained two additional PC's for data analysis, storage of geological information and monitoring of inspection and enforcement activities. Development of the Division's underground well injection monitoring system has been delayed pending EPA authorization.

The Energy Division has acquired additional PC's and software for modeling, data analysis, project management, report development, project expenditure tracking, budgeting, policy analysis, data reduction, workshop demonstrations, and GIS analysis. The division uses facsimile and telephone conference calls regularly to reduce out-of-town and out-of-state travel.

The Conservation and Resource Development Division has acquired three more PC's and two more DEC terminals. The PC in the Resource Development Bureau is used for office automation and to access the Loan and Grant Monitoring System. The basic portions of that system were completed as planned.

DNRC continued to maintain and improve the mainframe Oil and Gas Production and Water Rights Records database systems. The Water Rights System has been significantly enhanced with full online update capabilities.

NATURAL RESOURCES AND CONSERVATION Goals

The Water Resources Division will continue to develop and improve the models and databases mentioned above. Additional water rights field offices will be connected to the IBM mainframe if funding is available.

The Reserved Water Right Compact Commission plans to purchase another workstation for its GIS. This addition would increase computing speed, power, and functionality, providing decision makers with the best available information. Additionally, a LAN may be installed to link the PC's, the workstation and available printer/plotters. This facilitation of data transfer among systems is an essential part of the RWRCC GIS. An additional goal may be to link one or two of the PC's with the Department's DEC system for word processing and printer availability.

In cooperation with other user agencies, the Oil and Gas Division will review the oil and gas database to define any needed updates, design improvements or unnecessary functions. The review will include an evaluation of other states' oil and gas data management systems and an assessment of the future data management requirements of user agencies. Once EPA approval is received, the Division will continue development of the underground well injection monitoring system.

DNRC plans further enhancements to its networked Loan and Grant Monitoring System and the Conservation and Resource Development Division plans to set up standardized Loan and Grant System reports. That Division also intends to provide automation training to improve staff productivity and performance.

The goal of Energy Division is to increase Division efficiency and productivity by maximizing the use of its computer and communication equipment and software.

OFFICE OF PUBLIC INSTRUCTION

Accomplishments

In 1989 the Office of Public Instruction (OPI) began to standardize data processing hardware and software to become compatible with other State government agencies. Restructuring the computer hardware and software to DOA standards was initiated by the change in OPI administration and at Legislative direction.

The Office has historically operated a Honeywell level 6 minicomputer. In addition, OPI had an ARCNET LAN linking 48 PC's. The Honeywell computer and the ARCNET network would not allow OPI to take advantage of the computing power or services available from DOA. Communication with other state agencies was difficult if not impossible with existing equipment. Additionally, the Honeywell computer system was obsolete.

The Honeywell computer is being phased out and new systems are being developed on a recently installed wide area network and on the State mainframe computer. The Office of Public Instruction has joined the Department of Administration's subscription service and has replaced the ARCNET with the DOA-supported Token Ring network.

During the last two years the network has been expanded from a LAN of two administrative office locations to a wide area network of 5 locations. This effort has required the installation of a 56kb network bridge between the Capitol building and the other administrative offices located on 11th Avenue. Additional bridges extend the wide area network between the offices at 1300 and 1227 11th Avenue.

An asynchronous server has been installed in the office to link staff PC's through the LAN to a pool of modems. With this configuration, the staff continues to access education related bulletin boards. It eliminates the need to purchase individual modems installed in PC's and pro-

vides for a more efficient purchase and use of telecommunications modems.

Two small file servers with 286 processors which previously served the network have been replaced with larger IBM Model 80 file servers with 386 processors. Individual PC's and file servers have been placed under maintenance to ensure integrity of the wide area network.

The previous 9600 baud communications line to the State mainframe has been replaced with a 56kb bridge that enhances the speed of communications between the mainframe and SBAS users in the office greatly. During the current year a 1.544mb communications line (T1) will be installed between the Capitol building and the administrative offices on 11th Avenue to provide better response time for both PC applications running on the wide area network and mainframe uses.

The Office of Public Instruction created a Macintosh computer lab to develop curriculum materials and perform desktop publishing. The MAC lab also permits curriculum specialists to demonstrate and investigate educational products developed for Apple and Macintosh computers.

Several software changes were made during 1989 and 1990. The previous word processing and electronic spreadsheet software standards were WordStar and SuperCalc. These were replaced with Department of Administration supported WordPerfect 5.1 and Lotus 123 Version 2.2. The network operating system software, Novell SFT 2.15, has been replaced with OS/2 1.2 to take advantage of its source routing and file server management tools.

PCOX, the office standard for 3270 emulation software for State mainframe communication has been replaced with the DOA standard, Attachmate.

OFFICE OF PUBLIC INSTRUCTION Accomplishments

WordPerfect Office was selected as the electronic mail standard throughout the OPI. The electronic mail package has been in operation for one and a half years and has greatly improved communications among staff in the five OPI locations.

The Office of Public Instruction has supported and provided training for all staff in the office. Staff have been encouraged to attend Department of Administration and in-house training sessions on the technological tools available on the network and the State mainframe. Training will be expanded as staff begin accessing LAN and mainframe based applications that are moved from the Honeywell computer.

Several programming applications have been developed for use on the LAN. Accounting programs that interface between state and federal accounting programs and SBAS have been implemented. A direct deposit system to transfer foundation payments electronically to county/school district bank accounts has been

developed and implemented. Added programs have been developed for GED, inservice credits for certification, Chapter I allocations, and a program to track travel schedules of OPI staff. In addition, payroll and travel claim systems have been developed or obtained from the Department of Administration and installed on the network.

The Office of Public Instruction has worked with the U.S. Department of Education to improve data submissions involved in the Common Core of Data (CCD) greatly. Several programs have been modified to bring Montana's reporting of CCD data up to Department of Education standards.

Currently the OPI is working on a rewrite of the Foundation Program, a new mechanism to fund schools; a new budget reporting system to collect school district budget information; and a system to collect accreditation information on schools.

Goals

The Office of Public Instruction intends to build on the progress already made in networking and standardization with other state agencies. The Office will continue its emphasis on moving computer programs from the Honeywell system to the State mainframe and wide area network, providing training to staff in the use of hardware, software, and developing in-house applications. When an electronic mail package is selected as a standard for the Department of Administration, OPI will adopt that electronic mail package as the standard for inter-agency communications should that adoption prove cost-effective.

As required by HB28, the Office plans to begin offering electronic communication of education data and administrative communications to the school districts throughout the State.

In conjunction with the Department of Administration, the Office of Public Instruction and Montana school districts are working on the Montana Educational Telecommunication Project. This project will install state of the art telecommunications equipment in school districts to improve distance learning opportunities. As part of that process, the Office plans on upgrading the resource library and the audio visual library to allow those resources to function in a telecommunications environment.

The Office of Public Instruction is also working toward installation of administrative applications on the wide area network that will allow electronic transmission of data and reports between school districts and state government.

PUBLIC SERVICE COMMISSION

Accomplishments

An automated Case Management system was proposed for the Public Service Commission during the 1987 Legislature. The Case Management Program will be completed in June, 1991. Case information maintenance will ensure quick access to information in a form which will meet the user's needs.

The Utility, Transportation and Legal Divisions, working with Centralized Services, developed plans for a system using the IBM System/36. PSC has completed several applications, providing increased efficiency and effectiveness for Commissioners and staff. Some applications have a direct effect on the level and quality of services to the public. The staff plans to complete this project by June 30, 1991.

The Commission is using the following mainframe systems to increase the efficiency and accuracy of information processing and reporting:

Goals

Centralized Services will manage automation and systems development to provide efficient information processing for the daily operations of staff and management and to support informed, timely, professional decision-making by the Public Service Commission.

The System/36 and PC's will be maintained to stay current with information processing needs and technological developments. Hardware or software will be purchased as necessary.

Security, documentation, policy guidelines and contingency policies will be reviewed for PC's or the System/36 and updated and documented or published to management and staff as needed.

- Online Entry and Edit system for electronic input of accounting transactions to SBAS.
- Online Agency Warrant Inquiry system to inquire on the status of a payee, payment made by the agency, and warrant and claim information, as well as to create and access system reports.
- Online Pre-Payroll system to input the pre-payroll transactions electronically to the P/P/P system.
- State Electronic Bulletin Board to inform Montana Citizens of the Commission calendar of hearings, weekly agenda, notices of hearings and press releases.

The Commission is also working with a Rural Televisions System of Nevada which has expressed an interest in distribution of PSC information to rural areas through radio and television.

The Executive Budgeting System will maintain efficient communication with the budget office, particularly during a Legislative session.

Electronic Mail will establish additional communication links with agencies and offices that inform or are informed by the PSC.

The addition of new tariff information for historical tracking of tariff regulation will complete the Tariff Review Program.

Education of staff and management will continue on using computer systems--such as the Case Management Program--as data managers, not just word processors. Personnel will continue to receive pertinent training from ISD.

REVENUE Accomplishments

A greatly expanded function for processing 1990 returns was developed and installed for the Individual Income Tax System. This system was fully integrated into the Department of Revenue's IDMS database. The Motor Fuels Tax System was modified to include tax return processing and to incorporate all requirements for participation in the International Fuel Tax Agreement (IFTA). The department-wide Accounts Receivable system function was also expanded and all tax types were migrated from the previous antiquated system. As required by 1989 State legislation, a major effort was completed to remove the Child Support and Enforcement System from the integrated database so that the Department of Social and Rehabilitation Services can operate it on a stand-alone basis.

An IBM AS400 computer was installed in the Department to support the Computer Assisted Mass Appraisal System (CAMAS) for the Property Assessment Division. A massive, concurrent effort was undertaken to install Novell networks and associated PC hardware and software in all 56 county appraisal and assessment offices. This equipment is used to input data directly to the CAMAS System and for office word processing, spreadsheet development, and calendaring. Property Division staff were fully

trained to use these applications. After procurement of the CAMAS equipment in the prior biennium, the CAMAS system itself was installed and all residential, commercial, agricultural, and timber parcels were converted to this system.

A personal computer Novell network was installed in the Mitchell Building to serve word processing, file sharing and mainframe access needs of all Helena-based staff. This included installation of a remote communications bridge which gives the Property Assessment Division access to the network from the Steamboat Block. The network also involved installation of appropriate uninterrupted power supply and unattended backup hardware.

A Solid Minerals Database System was developed for the Natural Resources and Corporation Tax Division. A Local Government Severance Tax System (LGST) was developed in response to legislation from the 1989 Session and was then substantially redesigned due to changes in the law made during the subsequent Special Session. A Utilities Assessment System (UAS) was also developed and installed for the centrally assessed property valuation that the Property Assessment Division administers.

Goals

Maintenance and enhancement support needs have increased because of the many new systems recently installed by the Department of Revenue. Support is also required for the Department's PC's throughout the State--including hardware, Novell operating systems, and application software--and for the AS400, System 36 and network hardware and associated software.

The Department plans the following systems development activities:

- Develop and install a major enhancement to the Withholding System to include the Worker's Compensation Payroll Tax as required by the recent special legislative session.
- Develop and install additional functions supporting the Individual Income Tax System.
- Continue to work towards automation of the processes involved in accounting for Abandoned Property.

SECRETARY OF STATE Accomplishments

Data processing services were restructured creatively to streamline mainframe usage and public access. A LAN gateway to the mainframe replaced hardwire connections, allowing multi-system use at each work station. These efforts and aggressive management of the data base yielded substantial cost savings.

The installation of an Automatic Call Distributor (ACD) enhanced the office's ability to respond to telephone inquiries. The ACD handles six incoming lines and is connected to the Business Services Information Center. The Information Center is staffed with two FTE equipped with online access to the Uniform Commercial Code (UCC) and Corporate information. Since installation of the ACD, telephone inquiries have more than doubled and are handled with decreased interference with other essential services.

The Elections and Legislative Bureau created and implemented data base programs to handle election results, candidate filings, executive record documents, and appointments to boards, commissions and executive offices. Each of these projects included the development of historical files to assist public and State government research in these areas.

Goals

The purchase of a computerized optical storage and retrieval system would reduce operational costs and improve service to the public significantly.

Replacing or improving the UCC and Corporate computer programs currently on the mainframe will allow enhanced public access and more efficient information management.

The Office was one of the first participants in the pilot Electronic Bulletin Board system (BBS) program. Bi-weekly indexes from the Montana Administrative Register, candidate lists, election results and other information of general public interest are "posted" on the BBS.

The overall goal of improving speed and ease of access to information was also addressed with the following:

- The office was converted to online SBAS entry for all financial transactions.
- A computerized pre-pay system now allows the public to meet the pay-in-advance requirement without delaying service delivery.
- A fax machine was installed to facilitate sending and receipt of hard copy information.
- Notaries Public system data entry was completed.

The planned effort to install an upgraded UCC system was delayed because the system under consideration did not meet bid requirements.

A planned equipment repair and replacement program will prevent budget fluctuations and emergency purchase requirements.

The Office will continue enhancement of data base programs and structures to increase access to information on file with the Secretary of State. The emphasis will be on criteria for improving public access to State government information.

SOCIAL AND REHABILITATION SERVICES Accomplishments

The Department of Social and Rehabilitative Services awarded a contract for the design, development, implementation and facilities management operation of TEAMS, a statewide automated eligibility determination system for AFDC, Food Stamps and Medicaid programs. TEAMS will be the largest automated system ever constructed and installed by the State. It is scheduled for installation in county welfare offices in the summer and fall of 1991.

The Department installed more than 350 microcomputers in state and local offices to facilitate information management and processing throughout the Department. Approximately 50 of these are currently being used in the TEAMS development effort and will be transferred to county offices to function as workstations when TEAMS is implemented. Another 170 have been installed in Department field offices as workstations for the Child Support Enforcement Program, General Assistance Tracking System, Developmental Disabilities Program, Vocational Rehabilitation and Visual Services Program, and Quality Assurance Program. The remaining PC's have been allocated to central office functions.

A Department microcomputer information and training program was created to provide training and technical assistance in microcomputer use. The dedicated training facility provided in excess of 3000 employee-hours of training during the first complete year of its operation. In addition, other State agencies use the facility for training in microcomputer technology and access to mainframe systems.

SRS undertook the following local area network installations:

- A Novell LAN in the SRS Central Office to link approximately 70 microcomputers to a central server for data and software sharing and electronic calendar and message manage-

ment. The network also provides attached workstations with access to the State mainframe computer.

- A Novell LAN in the Child Support Enforcement central office.
- An OS/2 Lanserver LAN in the TEAMS development facility at the Steamboat Building. The network serves approximately 50 workstations, for both network-based activity and passthrough transactions to the State mainframe.

The Department designed, developed and installed a statewide General Assistance Tracking System to provide for continuous online monitoring of client activity, to prevent duplicate client registration across counties and fraudulent collection of general assistance benefits, and to provide detailed demographic and usage statistics required by the Legislature.

The existing Child Support Enforcement System was transferred from the Department of Revenue in conjunction with moving the child support function to the Department of SRS. The Department has contracted with ISD to maintain the software.

The acquired Child Support Enforcement System fails to meet current Federal requirements and must be updated to a federally certifiable system, as required under the Family Support Act of 1988. Because of these additional requirements and associated federal funding, SRS has been pursuing the transfer of an existing, federally certifiable, automated system for the enforcement and recovery of child support from another state to the State of Montana.

To date SRS has completed Phase 1--System Planning and Transfer Candidate Selection--for a statewide automated System for Enforcement And Recovery of CHild Support (SEARCHS).

SOCIAL AND REHABILITATION SERVICES Accomplishments

A candidate system has been selected. The development of an RFP for transfer, modification, installation and operation of the system will be completed in December 1990 and issued in March or April 1991 depending on when federal approvals are received. The development, production support, and maintenance will be privatized, using the State's computer and network facilities.

A relatively inexpensive modification to the MMIS system was implemented to save the Department between \$4,000 and \$5,000 each month of State general funds for processing of State Medical claims, reducing the amount paid for such processing from approximately \$200,000 per year to less than \$150,000. The numerous additional enhancements implemented in the MMIS system will significantly improve third party liability insurance recovery.

SRS designed, developed and implemented a statewide system in support of the Project Work Program (PWP) that was transferred from the Department of Labor in January 1990. The system supports data collection from PWP contractors in twelve counties and produces program management reports. It was integrated into the Department's General Relief Assistance System to save system development, operation and maintenance.

The Department's eligibility and Medicaid payments systems was modified extensively, enabling payment of benefits to pregnant women, infants and qualified Medicare beneficiaries under the Federal Medicare Catastrophic Coverage Act. The systems enhancements provided the identification of the appropriate women and children through the eligibility system, transmission of pertinent data to the claims payment system, payment of claims for services and reporting on expenditures.

SRS provided systems and programming support to the Department of Family Services through SRS operation and maintenance of the Client Database System until DFS can hire data processing personnel and develop its own system. The client database provided Family Services with automated invoice processing, payments to providers and management reporting for placing children in foster care family homes. It also provided client, case and service data for protective services children that are victims of abuse, neglect and exploitation. This support provides the Department of Family Services with an estimated cost avoidance of more than \$100,000 for the biennium.

SOCIAL AND REHABILITATION SERVICES Goals

Completion of the TEAMS project involves the following tasks:

- Acquisition and installation of the 400 microcomputers to be used as workstations in county welfare offices.
- Completion of TEAMS development tasks, system program testing and pilot installations in Lewis and Clark and Jefferson counties.
- Installation of TEAMS in all counties of the state by November, 1991 and training of local office personnel in system usage.
- Federal certification of TEAMS by February 1992.

The Child Support Enforcement system (SEARCHS) project will be implemented by October 1992. This includes transfer, modification and installation of the new system in the five district CSE offices, and subsequent operation of the system with privatized maintenance through a facilities management contract.

The Department plans to conduct an internal applications-engineering study to identify and develop application programs that will streamline labor-intensive manual activities, thereby increasing employee productivity, reducing costs and improving the quality of tasks department employees perform.

Enhancements to MMIS will provide the Department an efficient means for prior authorization of Medicaid services, thereby reducing Medicaid costs.

SRS will determine the feasibility of implementing computer card technology (Electronic Benefits Transfer) for the dissemination of such public assistance program benefits as AFDC, Food Stamps, and Child Support.

A program developed by the Drug Enforcement Agency will be implemented to use MMIS paid claims data to identify potentially criminal abuse of dangerous drugs prescribed by Medicaid providers.

An automated JOBS program will be developed and implemented to track activity and progress of AFDC clients required to train for and seek employment under the Federal Welfare Reform Act.

SRS will provide a minimum of 5000 employee-hours of training annually on microcomputer use to improve staff productivity.

APPENDICES

Appendix A--INFORMATION SERVICES DIVISION

This Appendix provides detail on the services, functions and directions of the Department of Administration's Information Services Division. The appendix is organized by the following functional and program areas: State Telecommunications Network (STN), Data Communications Network (DCN), Public Safety, 9-1-1 Emergency Telephone Systems, Distance Learning Projects, Central Computing Support, Application Systems, and Policy Coordination.

STATE TELECOMMUNICATIONS NETWORK

Accomplishments

The Department of Administration provides central management of telecommunications through the State Telecommunications Network (STN). Significant improvements and cost reductions have resulted from the completion of new T1 digital service links to Dillon and Havre and the implementation of further digital service links among other Montana cities. There is now T1 and 56KB service throughout a substantial portion of Montana for government and education.

Figure 1 is a map of the major routes on the STN.

Consolidation of voice and data telecommunications onto the same network facilities (leased and state owned) and the replacement of analog long distance facilities with digital facilities has improved the quality and reliability of communications while continuing to reduce unit costs. The following contracts are now in place:

- U.S. West--leased digital T1 circuits linking (1) Billings and Bozeman, (2) Helena and Butte, (3) Helena and Missoula, (4) Helena and Great Falls, (5) Great Falls and Havre, (6) Butte and Dillon.

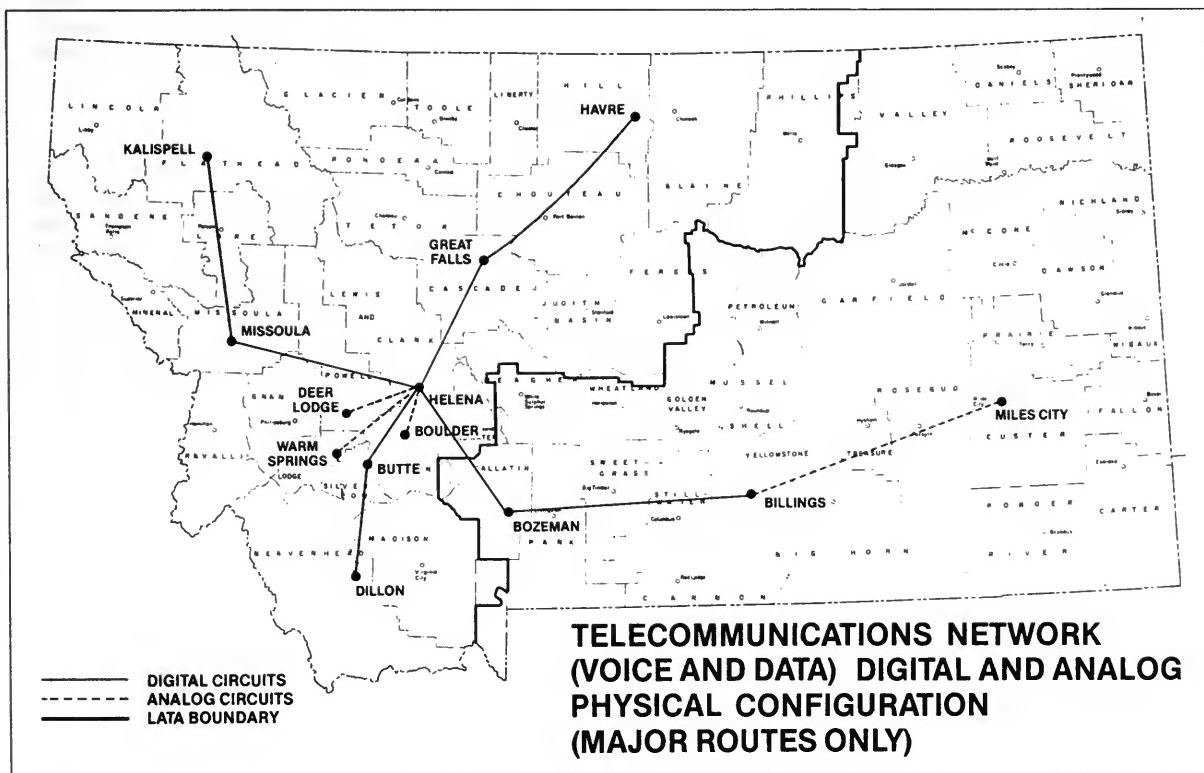


Figure 1 - State Telecommunications Network

STATE TELECOMMUNICATIONS NETWORK Accomplishments

- Intermountain Digital Network (IDN), a Montana Power Subsidiary-leased digital T1 circuits linking (1) Missoula to Kalispell and (2) Helena to Great Falls.
- Centel Business Systems--State owned microwave, carrying digital T1 between Bozeman and Helena.
- TRI Business Systems--digital termination equipment in the above cities.

The Northern Telecom switch at the Capitol Complex in Helena has been upgraded to support the additional telephone and data transmission requirements. There are also T1 links in Helena between facilities at the State Lottery, the Highway Department, Fort Harrison, and the Workers Compensation/Higher Education location.

Significant switch upgrades have been installed at the Armory, the Capitol complex, Kalispell, Montana State University, the University of Montana and Eastern Montana College (EMC) to handle additional telephones and enhanced digital transmission. Other major system additions have provided voice and data telecommunications services for the following State office relocations: Labor and Industry's Prospect Avenue location; Health's Front Street

Location; and the Helena Vo-Tech. In addition ISD has assisted in defining needs, bidding, evaluating, and awarding contracts to install 25 new telephone key systems throughout the State.

Replacement of the State's multi-party telephone conference system has allowed many agencies to reduce travel time and expenses. In the Spring of 1991, ISD will install a small, but expandable, voice mail system for the Capitol.

The addition of university system dormitory student's long distance traffic to the State network is a major project completed during the biennium. The discounts due to this traffic volume have resulted in significant savings to the students--projected to be \$331,000 annually--and a 3% savings to state agencies on long distance service.

The Telecom/Network Services Bureau has contracts with AT&T for interstate and interlata calling and with U.S. West for all intralata calling. These contracts will reduce all State agencies' long distance telephone charges.

These improvements to the State's telecommunication environment have reduced costs and established a solid foundation for future growth.

STATE TELECOMMUNICATIONS NETWORK Goals

Increased use of the digital network for video, emergency radio and public broadcast needs, as well as for voice and data transmission, gives rise to the need to allocate network capacity dynamically. Dynamic allocation of bandwidths currently in use would maximize the utilization of available frequencies and reduce the need for more digital links. The use of advanced technology where economically feasible, particularly digital T-1 services, would position the State properly for future voice, data, radio and video telecommunication.

As part of the network proposal to the Data Processing Advisory Council to provide a centrally managed single network throughout State government, ISD plans to enhance network connectivity and support to agencies.

State agencies and the university system continue to express interest in Voice Mail. ISD plans upgrades to the Northern Telecom switches to support the necessary digital voice message store and forward capability. This service has considerable potential for improving interactions within and among agencies, and with the public. For example, voice mail could facilitate university registration.

ISD continues to upgrade and maintain state-of-the-art telephone systems throughout Montana. Regular meetings with agency telecommunications coordinators provide the basis for understanding agency needs. This understanding helps the Division design and upgrade the network to meet additional requirements. Maintenance of existing switches, system additions and installations will take advantage of the latest available technology that meets communication needs and ISD and agency budgets. By receiving the telecommunications training provided by ISD, agency personnel will learn to use State systems most effectively, taking full advantage of technological advances.

It is critical that the Department of Administration maintain cost effective telecommunications network services. ISD will continue to structure cost recovery mechanisms to arrive at the lowest possible rates for the services offered. Use of existing state-owned facilities will be maximized. Negotiation of agreements with common carriers will provide economics of scale for the state's network.

DATA COMMUNICATIONS NETWORK Accomplishments

Montana's Data Communications Network (DCN) provides local and long distance data circuits to state, county and city offices throughout Montana and to three out-of state locations. The DCN is a major subset of an integral to the State Telecommunications Network.

The DCN is comprised of point to point and multipoint circuits leased from US West and AT&T and local links obtained from other telephone companies. The State owns and manages a microwave link, a variety of termination equipment and much of the building wiring that make up this network. The network consists of more than 4700 miles of circuits, supporting more than 120 offices in 58 cities and 3 states. It allows almost instantaneous access from nearly 4000 workstations to information on a variety of State computers. Figure 2, below, shows the DCN connections throughout Montana.

The DCN continues to grow through consolidation with other State networks, addition of new users of existing services and new applications. In addition to the equipment attached to the leased network, the DCN also provides dial-up data communications capabilities for State agencies and for the public. For example, this is the 4th session that the Legislative Bill Status System is available to the public.

The large growth in data communication demand has two major causes. First, the number of computer workstations available in the State has increased and second, the need for immediate access to information is increasing. More and more people are relying on computers to provide accurate, timely information. The DCN is the vehicle for reaching the computers and their stored information.

DATA COMMUNICATIONS NETWORK (DCN)

December 1990 Issue

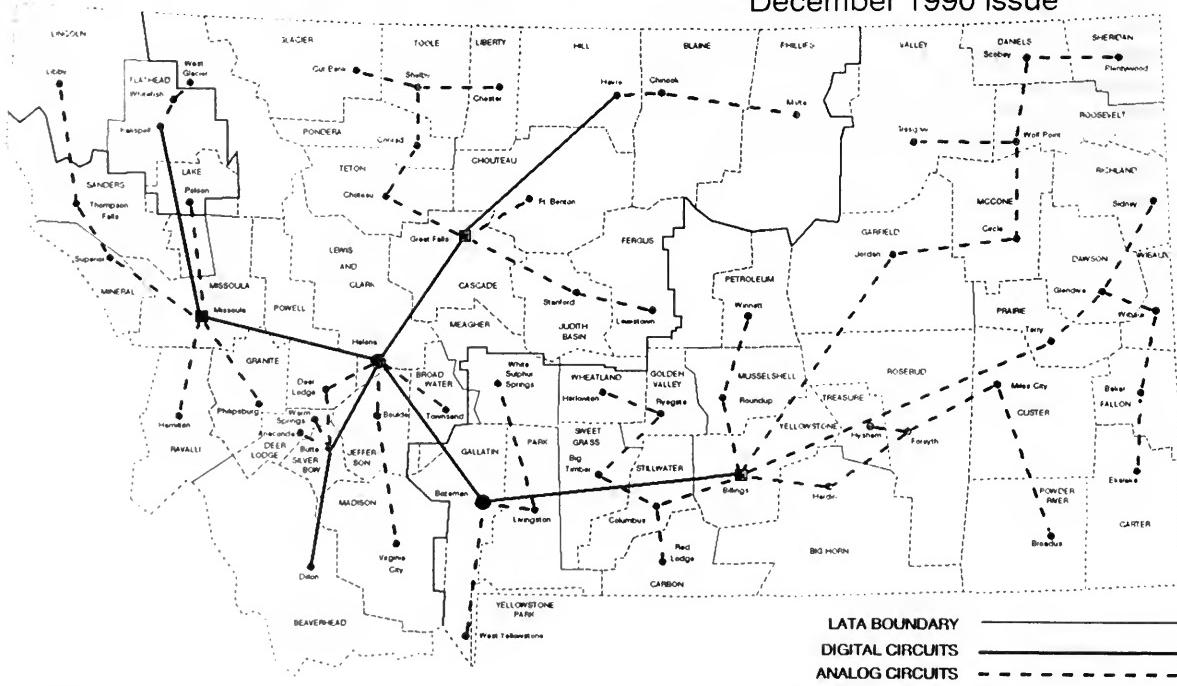


Figure 2 - Data Communications Network

DATA COMMUNICATIONS NETWORK Accomplishments

Resources have been devoted to several large network projects. The addition of new devices--a substantial number of them for the Department of Social and Rehabilitation Services TEAMS system and the Department of Labor Job Service system--will increase the total number of devices on the network by nearly 1000. Preparation for this increase has involved a complete long distance network redesign and speed upgrade to at least 9600 bps in all locations throughout Montana.

During the 1990-91 biennium several other large network projects were accomplished. A statewide DECNET was implemented to connect the six University campuses on digital 56 KB circuits. This network also serves the

Department of Highways and the Department of Natural Resources.

Local area network expansion also boomed with ISD adding more than 1000 workstations per year to agency LAN's. Most of the State's LAN's, which number 100 or more, are connected to the DCN. ISD continues to work with agencies to design, configure and maintain LAN's to support their workstation growth. This network use lowers costs, increases productivity and makes more information available to agency staff through shared microcomputer hard- and software facilities. The LAN's also act as a communication concentrator for access to the State's mainframe and any other computing resources available to Montana government.

Goals

The Information Services Division plans to construct a high speed, backbone local area network at the capitol complex and to expand its range of support to include all workstation and network users. If requested FY92 and FY93 funding is obtained, the backbone LAN will use buried fiber optic cable to link all buildings in the complex, interconnect existing LAN's, provide more connectivity to agencies on DECNET and help connect other networks. The feasibility of expanding DECNET to include other educational organizations is also under study. This network will eliminate the need for new voice wiring on the capitol complex, increase voice capacity and provide for video service in the 1990's and beyond. Most immediately, it will link micro-, mid-range and the State mainframe computers on one cost-effective network with increased access to State information, increased LAN reliability and flexibility for organizations that are moving, reorganizing, or sharing resources on the capitol complex.

The two large data communication projects in progress--for the Department of Labor and for SRS--will increase the number of workstations on the network by more than 500 as the plans described above are implemented.

The dynamic growth in networking is one of the State's most significant challenges during the 1990's. The rapid expansion of services with the least fiscal impact requires a greater emphasis on the strong centralized role of ISD to achieve the following:

- Reduce non-standard networks to minimize costly gateways and interconnections and to lessen the cost of network reconfigurations that occur as a result of agency moves and reorganizations;
- Maximize the sharing of both local and long-distance resources among agencies;
- Use a small, highly skilled network control staff for central operation and problem resolution, thus reducing the proliferation of network specialists in the agencies.

This necessary cost control must not be at the expense of meeting agency needs with the most effective, at times non-standard, technological solution. ISD will consider all technological alternatives when new networking applications are planned to meet both application requirements and the long term goals of shared resources, connectivity, and cost reduction.

9-1-1 EMERGENCY TELEPHONE SYSTEMS Accomplishments

The 1985 Legislature designated 9-1-1 as the primary emergency telephone number within Montana and provided funding for statewide implementation assistance and coordination. Effective January 1, 1987, a twenty five-cent fee was imposed on all telephone subscribers' access lines to support 9-1-1 implementation. The DOA administers the funds collected, helps local communities to develop 9-1-1 emergency telephone service, and approves system implementation plans.

From January 1987 through June 1990, the 9-1-1 fee has generated \$3,743,310. During this period the State has distributed \$1,957,264 to local governments to implement and maintain 9-1-1 service. About \$434,150 has been used to convert telephone company facilities for 9-1-1

access and \$265,040 has been used to administer the program. The Department is holding an additional \$1,376,130 in the State's Short Term Investment Pool to distribute to local governments as their emergency telephone system plans are approved.

As of November 1, 1990, there were thirty State-approved 9-1-1 emergency telephone systems. Twenty-seven of these systems are operational and available for public use. Two of them are multi-county by design. The 9-1-1 systems provide emergency telephone service to sixty-five percent of Montana's population. Eighteen additional areas are actively planning for emergency telephone service. The organizations and representatives on the 9-1-1 Advisory Council are shown in Appendix E--9-1-1 Advisory Council.

Goals

The Department of Administration will work closely with local 9-1-1 jurisdictions and the telephone companies to develop and implement five to seven new 9-1-1 emergency telephone systems each fiscal year.

The department will continue providing technical assistance to improve emergency communications systems using 9-1-1. All funds allocated to the 9-1-1 program will be managed to insure the proper distribution and expenditure according to statute.

PUBLIC SAFETY COMMUNICATIONS Accomplishments

The Public Safety Communications Task Force, established by the Telecommunications Policy Advisory Council in 1988, concluded its work in December 1989 with resolutions and recommendations to improve this critical information resource. Major improvements were suggested for mutual aid radio, radio spectrum planning, frequency licensing, and centralized coordination. Long and short range plans for the improvement of applied land mobile radio technology are under development in close cooperation with the Associated Public Safety Communications Officers (APCO), the Federal Communications Commission (FCC), and local and state government users. A membership list of the Task Force and Advisory Council appears in Appendix F.

The Public Safety Communications Program has been placed under the ISD Office of Policy, Research and Development where it can be closely coordinated with the 9-1-1 Emergency Telephone System Program. Major recent public safety communications accomplishments have been in the area of mutual aid radio. Consensus within user communities has led to the establishment of utilization plans for all state

mutual aid frequencies and the adoption of policies and procedures for fire and law enforcement. More than sixty base stations were established on the National Law Enforcement Frequency in 1990. They are operated by federal, state and local agencies under authority of the Department of Administration.

Significant advances have been made in frequency coordination. The Public Safety Communications Program provides support for the Montana Frequency Advisory Committee (MFAC) of APCO. MFAC meets monthly to review applications for public safety frequency licensing. Members of MFAC are listed in Appendix G.

The use of automated information systems has facilitated the Department's balancing of competing demands for radio frequencies while increasing program efficiency. Frequency coordination requests during calendar years 1989-90 increased 100% over the previous two year period. Discounting the Department's own mutual aid licensing, requests were still up nearly 50%. Close cooperation with applicant agencies and their system vendors has streamlined the coordination process and resulted in better communications.

PUBLIC SAFETY COMMUNICATIONS Goals

Further implementation of the Communications Task Force recommendations is planned for the coming biennium. Of prime importance is to continue developing mutual aid radio. The growing use of this critical public safety resource requires oversight by user councils. Current plans call for publications and presentations designed to educate the user community, along with aggressive frequency monitoring to identify improper user activities.

A significant frequency planning effort will take place over the next two years. In 1987, the FCC established a five-year period for acceptance of regional plans covering the new 800 MHz public safety frequency band. Regions must submit plans by the December 1992 deadline to be considered for future use of these frequencies. Montana has been designated FCC Region 25 for planning purposes. The Department of Administration has accepted the lead responsibility for developing this plan. The plan must address future use of the 800 MHz band by public safety agencies and allocate the available frequency spectrum fairly.

The Department will also proceed to further automate its frequency coordination system following the Task Force's recommendations. Implementation of a geographic information system for spectrum management is anticipated. This system will be valuable not only for coordination of frequency license applications, but also for systems design and management of existing State of Montana licenses.

The mutual aid radio, 800 MHz planning, and frequency coordination initiatives outlined here will be combined with an effort to assist public safety agencies with their communications planning needs. Opportunities for shared systems and economies of scale will be explored with a greater emphasis on centralized coordination than in the past.

DISTANCE LEARNING PROJECTS Accomplishments

MONTANA EDUCATIONAL TELECOMMUNICATION PROJECT

The 1989 special session of the State Legislature passed House Bill 28, which provided general fund support to "promote the use of distance learning telecommunications technology for the purposes of enhancing educational opportunities provided to students in the Montana public school system and promoting equal access by students to those opportunities."

The legislature appropriated \$200,000 for fiscal year 1990 "to retain a telecommunications engineering consultant and to support development of and improvements in telecommunications networks in Montana...and \$300,000 for the biennium ending June 30, 1991, to be used for education network implementation and improvements if a 50% match in funds or equipment is available from other sources." TeleCommunications, Inc. (TCI) has contributed the 50% match (\$150,000) for fiscal year 1991. TCI pledged a like amount for FY92 if the State Legislature appropriates \$300,000 for the distance learning projects.

In close coordination with the Superintendent of Public Instruction and the Commissioner of Higher Education, DOA selected a consulting firm in December 1989. The firm chosen, Lambda Communications studied the needs met, costs and other benefits of distance learning alternatives already in use in Montana, and identified the possibilities for using and augmenting distance learning capabilities. More than 125 meetings were held throughout Montana with school district, economic development, local government and industry officials. More than 1,000 individuals were contacted during the course of the six month study.

The final report, completed in July, 1990, proposes the establishment of the Montana Educational Telecommunications Network (MET-

NET). METNET is based on an evolution toward a multi-faceted technological solution to educational outreach in the State, phased-in over a five year period. The plan incorporates:

- Computers and modems used to access computer-based educational programing
- Satellite dishes for delivery of educational programming and instructional courses
- Two-way interactive video systems for instructional delivery over distances.

In FY91, the Phase I efforts will be directed toward installing distance learning telecommunications equipment in as many schools as possible using the general fund, TCI matching funds, and local support funds.

KU BAND UPLINK

In early 1989 Alpha Lyracom, Inc., donated to the Office of the Commissioner of Higher Education and the State of Montana one five-meter Ku band transmit/receive video uplink earth station. Alpha Lyracom made this donation to promote the development, use and understanding of satellite communications in Montana in both the public and private sectors.

After a site selection process, the earth station was delivered to Montana State University, in Bozeman, Montana. Upon its installation in early 1990, the uplink became the sole and exclusive property of the State. MSU designed and remodeled a room adjacent to the uplink as an "electronic classroom"--or TV studio. In the fall of 1990, a debate between Governor Stan Stephens and Superintendent of Public Instruction Nancy Keenan was held in the studio and broadcast throughout Montana via the uplink.

DISTANCE LEARNING PROJECTS

Accomplishments

MBA CLASS

In April of 1988, a contract was signed with SJL Broadcast Management of Billings to continue the broadcast of MBA classes from the University of Montana in Missoula to Eastern Montana College in Billings. SJL provides the video transmission (with voice), from Missoula to Billings. The voice transmission from

Billings to Missoula is carried over the State Telecommunications Network.

The first class was offered and transmitted in the fall of 1988. It met with a very positive reaction by those students taking the class in Billings. The third year of this program began in the fall of 1990.

Goals

METNET

The 1991 Legislature will be asked to approve the continuation of METNET with \$300,000 in general fund support each year, subject to a 50% match by other entities. The FY92 match has already been secured from TCI, and it is anticipated that the FY93 match can be obtained from the private sector or in Federal matching dollars. With this funding, coupled with local matching dollars, the implementation of various distance learning technologies can be completed during FY92/93.

Phase II of the program will complete the initial equipment installation in all K-12 schools during the coming biennium. Phase III, planned for FY94 and 95, is the implementation of at least one two-way interactive video system in each county in the State. Staff positions, responsible for distance learning activities in K-12, are needed within the Office of Public Instruction. This staff will provide to school districts training, course development, technology assessments and coordination of K-12 distance learning with other originators of courses, such

as the Montana University System. The installation of at least 6 two-way video systems will be completed during the biennium if METNET is approved by the Legislature. The completion of installation of these two-way video systems in each county is anticipated for FY94 and FY95.

KU BAND UPLINK

The use of the Ku band uplink at MSU is expected to increase dramatically in the next several years. The electronic classroom/TV studio next to the uplink can be used to produce and distribute educational classes, debates and other programs suitable for delivery via the satellite uplink.

MBA CLASS

The MBA class in Billings is expected to grow to keep pace with the growing interest in it. The Division will explore alternative methods of transporting the video signal from Missoula to Billings.

CENTRAL COMPUTING SERVICES Accomplishments

In June of 1989, ISD purchased and installed a new IBM 3090 model 200E mainframe computer to respond to continued growth in information processing. ISD has experienced an eleven-fold increase in mainframe processing since fiscal year 1982 (FY90 shows an increase of approximately 1100% over FY82). This new computer has a capacity and speed approximately twice that of its predecessor.

ISD has implemented reductions in its rate for computer processing in each of the last two fiscal years. In FY90, the rate was reduced 6 percent from the prior fiscal year. This rate was further reduced in FY91 by approximately 8.5 percent. These rate reductions continue the trend ISD has established of reducing its mainframe processing rates over the past ten years. In November 1989, ISD purchased and installed an IBM model 3725 laser printer to provide high quality, high speed print capability to State mainframe users. Among the features of this printer is the ability to design and print special forms electronically, eliminating the need to stock large volumes of these forms.

To reduce the cost of data entry, that function was contracted to a private vendor beginning in October 1990. The privatization of data entry is projected to save the State approximately \$300,000 over the three year period of the contract. In addition, this contract allows other agencies to use the contractor's services, which offers the possibility of additional savings to the State.

ISD has established and continuously met the following computer processing service goals:

- Provide 99%+ availability of all services during the prime shift on weekdays;
- Provide 95%+ availability of all services during swing shift on weekdays;
- Provide 90%+ availability of all services during third shift, weekends and holidays;
- Avoid service disruptions and outages caused by system and hardware configuration changes;
- Provide online response times that are under two seconds for locally attached users and five seconds for remotely attached users.

CENTRAL COMPUTING Goals

ISD plans to purchase new cartridge tape drives and tapes to replace the current reel tape system. This new tape system will provide higher speed and reliability while decreasing the labor intensity of the tape processing function.

With technological advances in the industry, ISD expects to meet, and perhaps improve upon, the service goals described above. Many of the "automated operations" software products currently available could increase the efficiency of computer operations while decreasing labor intensity. The service areas to be analyzed for implementation of improved methods include job scheduling, automated print distribution, system managed storage, and console automation.

ISD plans to upgrade the 4381-R14 processor at the Armory site in the coming biennium. The upgrade will provide additional processing resources for Department of Justice applications, provide additional backup potential for

the State's main data center, and maintain the required compatibility with the main data center.

For adequate physical security, the computer system and network control center should ideally be located in a separate facility specifically designed to house a data processing and network operations center. A long term goal is to gain approval to build a facility that is adequate, given the criticality of the services provided by the central operation.

ISD has attempted to use the Armory computer center as a disaster recovery site for State mainframe operations. This approach has many deficiencies and does not accommodate a quick, efficient recovery in the event of a major disaster. Contingent of legislative approval of funding, ISD plans to purchase "hot site" services with an organization which specializes in this area.

APPLICATION SYSTEMS Accomplishments

ISD has completed development or enhancement of application systems designed to increase State agencies' efficiency and effectiveness. In some cases, ISD provided database design services in support of a programming effort by an agency's data processing staff. In others, ISD provided all computer programming services, including database design, systems analysis, and programming. The agencies supported during the biennium include:

- Commissioner of Higher Education
- Department of Administration
- Department of Family Services
- Department of Fish, Wildlife, & Parks
- Department of Health & Environmental Sciences
- Department of Highways
- Department of Justice
- Department of Labor
- Department of Livestock
- Department of Natural Resources and Conservation
- Department of Revenue
- Department of Social & Rehabilitative Services
- Department of State Lands
- Legislative Council and Legislative Auditor
- Office of Budget and Program Planning
- Secretary of State
- State Auditor's Office

One noteworthy effort is the technical assistance provided to the Department of Social & Rehabilitation Service's Economic Assistance Division in the planning and design of The Economics Assistance Management System. TEAMS is projected to be the largest application system ever placed on the State's mainframe computer.

Efforts continued during the biennium to provide data processing staffs with more effective application system development software. Additional software was purchased to increase the productivity of data processing professionals.

ISD provided training on and support of data and office systems software to nearly all state agencies, primarily in Helena but also in other cities across the state. Emphasis was on standardization and agency use of existing software. Two new projects of note are the evaluation and selection of a statewide electronic mail system and the implementation of a central State bulletin board system.

APPLICATION SYSTEMS Goals

The purchase of software designed to integrate multiple "platforms"--typically the mainframe and PC's--will be a primary objective for the next biennium. Software acquisition will be aimed at increasing the productivity of data processing professionals. Support for database-related software will be stressed for mainframe applications.

A centralized technical training program, much of it contracted to the private sector, will continue during the next biennium.

ISD will continue to provide database design services to agency data processing staffs. System design and programming services will continue for large development projects that exceed the long term personnel needs of the agency or for those agencies that do not need a full-time staff.

Data and office systems support will continue. Support requirements grew rapidly in the last biennium as agencies installed large numbers of PC's. Support requirements for existing software should stabilize as technical staff is added and expertise grows within the agencies. The Division will continue to emphasize evaluating new software to make more cost effective use of the installed PC's.

A phased implementation of the new statewide electronic mail system will take place. This effort is expected to extend throughout the biennium.

POLICY COORDINATION Accomplishments

Hardware and software compatibility has increased among State agencies and Universities. Agencies are selecting standard hardware and software products that are consistent with Montana's information and communication systems architectures. ISD review of agency purchases, development of term contracts for standard equipment and maintenance services, product evaluation, technical expertise, and assistance have influenced this improvement.

Coordinating and participating in the Data Processing Advisory Council meetings gave ISD

valuable direction about the importance of various services that are, or should be, provided.

Several large application projects have used ISD to assist in coordination to achieve integration of technology and service. These projects include the SRS TEAMS and SEARCHS projects.

Many State agencies have used ISD services to assist their transition to LAN's that use standard topology and software. These accomplishments have resulted in a more integrated total state information system than ever before achieved.

Goals

ISD will continue to provide the services which encourage and support state agencies in communicating and sharing information quickly and efficiently. These services include continuing to review agency purchases and work with agencies on hardware and software selection to meet their individual needs, yet meet statewide standards.

Term contracts for the purchase of standard hardware and software will be maintained with emphasis on monitoring vendor service and agency satisfaction and assuring that new products are available at the appropriate times after adequate testing and evaluation.

ISD will continue to provide the highest possible level of assistance to agencies in procuring hardware, software, and services. This goal will involve participation in the preparation, evaluation, implementation, and contract management for projects such as SRS TEAMS, SRS SEARCHS, and the Department of Health WIC Local Office Automation, as well as purchase of hardware not available under term contract.

ISD will provide leadership and coordination of statewide IS application projects involving inte-

gration of technologies and services and management of the early phases of projects that involve various disciplines. Included in these projects are the use of imaging technology alternatives for Records Management, such as Optical Disk technology; improved addressing of outgoing state mail; and Electronic Data Interchange (EDI). Also included are coordination of agency use of Geographic Information System technologies with the resources and expertise available through the Montana NRIS and coordination of possible uses of the State's public access systems.

ISD will continue to develop and enhance policies and programs that improve security and recoverability of IS resources. The following are security and disaster recovery objectives:

- Avoidance of disruption of any State government service because of data or system security.
- Organized response to restore services at the highest level possible after a disruption of due to disaster.

Appendix B--INFORMATION & COMMUNICATION SYSTEMS ARCHITECTURE

Introduction

Information is a critical resource for Montana State government. Public service delivery depends on the availability of accessible, shared information. Storage, modification and communication of this information is increasingly dependent on computer and telecommunication networks.

ISD offers standards for and coordinates agency activities in hardware and software acquisition and use, telecommunications use, information management, and training. Standardization of information and communication technology establishes a structure which will ultimately allow simple, direct access to all information resources within state government.

This appendix defines the State of Montana's Architecture for Information and Communication Technology. The architecture serves as a general technical structure for implementation of information and communication technology. Guidelines for statewide, department wide and personal information and communication systems are described by the following hardware, software, telecommunications and application architectures.

TELECOMMUNICATIONS ARCHITECTURES

Telecommunication Architectures define the structures for voice and data transmission among people and computers. The state telecommunication network is intended to serve four main functions: voice communication; data communication (including local area network); radio communication; and video communication. The Department of Administration provides planning, procurement and management services for the shared digital network. Voice and data communications links, as well as increasing use of emergency radio links and video communications, are centrally coordinated.

State Telecommunication Network

The STN is based upon distributed Northern Telecom switches located in Montana's major cities. Transmission facilities are leased from private providers except for a state owned microwave link between Helena to Bozeman. The State benefits from the economies of shared facilities and coordinated network decisions.

Investments in digital telecommunication capabilities provides the continuing platform to manage the State's communications needs. Lease versus purchase decisions are and will be made so as to reduce long term costs to the State. New capabilities, such as switched digital access and fractional T-1 will be implemented as they are made available and prove cost effective.

Statewide Data Communication Network

The role of the Data Communication Network is to:

- Link all agencies and all computer resources in one homogenous network such that information can be freely exchanged--and adequately protected--among agencies and their various computers, regardless of their location in the state.

- Provide maximum benefit of shared transmission facilities to all agencies.

ISD provides all services for this network to encourage the sharing of existing hardware, software and information investments whenever possible. Duplication of data networks is minimized to avoid the high cost of network management and the potential for incompatibility.

The DCN is based on three network protocols: IBM SNA for mainframe access; DECNET for DEC equipment communication; and IEEE 802.5 Token Ring standard for microcomputer LAN communication. These three protocols are integrated onto the State Telecommunications Network where possible and are bridged to allow maximum inter-operability of computing devices.

The DCN will incorporate emerging standards such as the Open Systems Interconnection (OSI) model and the Integrated Services Digital Network (ISDN) model. Support for these new standards will keep pace with the introduction of reliable and compatible software products that can be integrated into existing network architecture.

Local Area Networks

LAN's form an integral part of the state DCN through bridges and gateways that allow computers on these networks to access other state computer facilities. A LAN allows the development of work groups that require access to a common pool of information. The State LAN standard is the IEEE standard (802.5) for Token Ring networks. The functions of a LAN are to:

- Connect computers in a local area to share hardware, software and information resources.

TELECOMMUNICATIONS ARCHITECTURES

- Allow computer users to communicate information quickly and efficiently either within work groups or statewide through gateways to the central data network.

To ensure the long term viability of state operated LAN's, the Department of Administration designs, configures, installs and maintains all LAN's as part of its State data network. Agencies manage their computing resources on these networks.

A central network backbone for data communication will be necessary to serve the expected growth in PC's with complex communications requirements.

Radio Communication Networks

The Department of Administration manages mutual aid radio networks for law enforcement, fire, emergency medical, and other public safety services. Frequency utilization plans, policies

and procedures for mutual aid radio are developed and maintained through cooperation with state and local public safety agencies. The plans, policies and procedures are published and distributed widely.

The Departments of Justice, Highways, and State Lands maintain independent radio networks. Significant portions of their long distance traffic are carried over the STN. Radio communications will more fully utilize these fixed facilities as the economics and benefits of wide-area networks become apparent.

Advanced radio networks used by the private sector within Montana and by public agencies outside the State offer the potential for shared systems. Radio communications from any state or local public agency could be carried on systems designed primarily for public safety by using a combination of public and private facilities. The Department of Highways is currently testing an advanced private sector system for public safety applications.

HARDWARE ARCHITECTURES

Hardware Architectures define general guidelines for the acquisition and use of computer hardware. This section presents a discussion of central, departmental, and personal computer platforms for computing hardware.

Central Computer

Operation of a mainframe based data center enables the State to take advantage of the economies of scale associated with large computer installations. Overhead costs are shared among all users of the central system.

The role of the central data center is to:

- Coordinate data communications among State agencies by functioning as a switch for applications such as micro-mainframe transfers and electronic mail.
- Operate large application systems, such as SRS TEAMS or the income tax system, that require the resources of a mainframe data center.
- Serve statewide applications such as the payroll and accounting systems.
- Provide a repository for information that is critical to the State in terms of availability or security, such as law enforcement information.

The central data center includes a large IBM mainframe processor and peripherals that are accessible--locally on the capital complex and from remote locations throughout Montana--via the data network. The data center operates 24 hours a day, seven days a week.

The data center offers a full range of services normally associated with a large data center including computer batch and online processing, printing, data storage and archival,

computer output microfilm (COM), and network management. The data center and network take advantage of the centrally controlled computing facilities to ensure reliable management of information. Physical and logical security are managed to ensure the availability, confidentiality, and integrity of State information.

Data center services are provided on a full cost recovery basis. Agencies have discretion in choosing the type and amount of service used. The cost per machine unit of work continues to drop as the price/performance ratio of hardware decreases, permitting agency acquisition of more computing capacity at lower costs.

Departmental Computers and Servers

Departmental computing is an invaluable part of the state's computing environment. Mid-range computers and microcomputer servers allow agencies to automate unique functions and consolidate and standardize agency-wide and local office functions. Agencies retain complete responsibility for operation, security, disaster recovery, performance, problem determination, and maintenance of departmental hardware and software. ISD provides network services. Mid-range computers and servers provide the following:

- A repository for software and data shared within an agency.
- Access to shared printers and other peripheral equipment to be shared with an agency.
- Access to applications that are agency-wide.
- A communications switch within a local area of an agency.
- A switch to communicate with other systems and networks.

HARDWARE ARCHITECTURES

- Access to specialized application requirements such as computer aided design or lottery transaction processing.

The Department of Administration reviews all acquisition plans for departmental processors to confirm that the intended use falls into these categories and to ensure communications compatibility with the mainframe and State Data Communications Network.

The mid-range class of computers and servers will experience continued price reduction and performance improvement, resulting in more applications appropriately placed on this platform. These systems will be increasingly linked via local networks to personal computers and to the mainframe via high speed data communication links. Networking of this sort will provide State employees the flexibility to communicate within the department and beyond to centralized or other agency computing resources.

The ISD direction to provide a single data network will encourage standardization of these computers, reducing the complexity and cost of interconnecting heterogenous systems. Through this defacto standardization, diverse systems can be brought together and accessed from a single terminal anywhere within state government. Standardization need not mean one specific processor model, but a set of specifications that meet stringent compatibility and communication requirements, such as peer-to-peer communications.

Personal Computers

Microcomputers are used throughout state government as the basis for automating management, professional and clerical tasks. The primary advantage of distribution of processing power to individuals is the productivity gain to be realized. Personal computers provide the following:

- Access to mid-range and mainframe computers, applications and data.
- Individualized applications such as spreadsheets, word processing, program development, database management, and graphics.
- Electronic mail, information transfers, and calendaring functions.

Agencies retain complete responsibility for all aspects of their microcomputer installations except communications. The Department of Administration reviews and approves all personal computer purchases to insure compatibility with the State network and supported software. DOA manages term contracts through which agencies can purchase compatible personal computers.

Central support is provided for IBM compatible microcomputers using both the micro-channel and industry standard buses. Agencies also need internal staff or private sector assistance to complement the support available centrally.

Agencies are encouraged to purchase microcomputers based upon 80386 or more recent architecture to ensure 5-8 year useful lifespans. Agencies should also procure computers with graphics capability, since many personal and enterprise applications use graphical display interfaces to improve the usability of applications and information. Older microcomputer architectures based upon the IBM XT and AT designs (ie. 8088 and 80286 processors) should be viewed as short term investments. Industry directions indicate that software requirements will dictate replacing most of this equipment within two to three years.

SOFTWARE ARCHITECTURES

Software architectures define general guidelines for acquisition and use of software resources. The following discussion covers operating systems, application development systems, and office systems for each hardware platform.

The Department of Administration provides technical support services in conjunction with a series of support "levels". The number of software products that receive "full support" (current maintenance level, priority problem resolution, training) will continue to expand. Products that do not receive full support are supported at a lower priority and products are reviewed for removal and discontinuation of support.

Operating System Software

Operating system software provides the overall control and management of physical system resources--memory, disk storage, and peripherals such as printers. It is important to select operating system software to match the specifics of the hardware configuration. Hardware and operating systems have performance and capacity limits, both upward and downward. New hardware capabilities often necessitate operating system enhancements or changes.

Operating systems for departmental processors vary throughout state agencies. To date, no effort has been made to standardize operating systems for mid-range computers. The state maintains two standards for microcomputer servers, Novell Netware and OS/2 Lan server.

The limitations of operating system software are very evident for personal computers. PC computing requirements have outstripped the MS-DOS operating system. New PC operating systems will allow better use of the higher function applications and faster processors.

Applications Development Systems

Application development systems enhance staff productivity, taking advantage of computer hardware capabilities and decreasing costs and placing the State in a better position to control escalating personnel costs.

The Department of Administration researches and selects, for mainframe and personal computer platforms, application software development tools that can improve the quality and effectiveness of applications. State agencies are encouraged to use standard development tools and procedures through cost incentives, support structures, and procurement avenues. Agencies that use standard development practices invest less in personnel training because staff can readily move between agencies without significant retraining. The State also benefits by having systems that can readily exchange information.

Office Systems

There has been a profound expansion of office automation in state government. As personal computers move into the workplace, the software used to automate office functions--such as word processing, electronic mail, calendaring, spreadsheets, database management and graphics--directly impacts the productivity of state workers. Office systems integrated across all three hardware platforms provide for productive interoffice communication. In addition, consistent office systems and standard software tools throughout state government facilitate information flow and minimize retraining employees who transfer to new positions.

APPLICATION ARCHITECTURES

Application architectures define the appropriate hardware platform to be used for application software.

Enterprise Applications

Enterprise applications are defined as software applications designed for use by all state agencies or to serve business functions common to multiple agencies. Enterprise applications provide the following:

- Compatibility for central reporting and information exchange.
- Avoidance of duplication of agency costs.

Enterprise applications encourage information sharing and provide a consistent view of information. The resource demands of enterprise applications usually result in use of the central mainframe. As the connectivity and the applications development software of mainframe, departmental, and personal computers improve, enterprise applications will be distributed across multiple platforms.

Distribution of applications can improve agency flexibility, control, performance, and cost. Distribution may also add complexity to the application environment. To determine the appropriate hardware platform for enterprise applications, agencies and system designers must consider the logistics of distributed data management carefully.

The Department of Administration works with agencies to offer consistent and secure access to State information through centrally managed facilities and standardization of enterprise application development.

Departmental Applications

Departmental computing environments provide opportunities to automate applications that:

- Operate independently of other state programs.
- Share information within a department.
- Require compatibility with systems in other states or with federal programs.

Agencies are responsible for management of departmental systems. They control design, development, implementation, operation, and ongoing support of departmental applications.

The "fixed costs" of the departmental processors allow agencies to automate applications which would not independently justify hardware acquisition or central computing costs.

The importance of transportability of applications among personal, departmental and mainframe computers must be considered. Changes to agency organization or program responsibility may necessitate the transfer of applications or portions of applications. Decisions regarding development and placement of departmental applications require careful analysis to select an option that will allow future adaptability to organizational or technological changes.

Personal Applications

Personal computers and software have allowed state employees to respond to the increasing demand for service and information. Personal applications help meet this demand by providing the following capabilities:

- Address the unique information and computing requirements of a specific position.

APPLICATION ARCHITECTURES

- Consolidate information from departmental and enterprise systems to meet special reporting or analytical requirements.
- Develop improved methods for carrying out job responsibilities.

Agencies are responsible for management of personal applications. They control design, development, implementation, operation, ongoing support, and guidelines for use of personal applications. ISD provides application

software support staff on a contract basis to provide training, support and trouble shooting for personal applications. End user computing tools simplify the access to and use of enterprise and departmental information. Non-technical workers from management to clerical levels are able to answer their own needs with minimal assistance from information services professionals.

Appendix B--SUMMARY

The State of Montana's Information and Communication Systems Architecture is intended to coordinate and encourage appropriate, effective use of technology as a tool to deliver the most cost effective government possible. It is the Department of Administration's intention to provide and coordinate the use of information services consistent with legislative direction, agency needs, and marketplace trends. We believe that investment in well managed technology will continue to show an increased payback relative to the investment in personnel.

In the coming biennium the Department will continue:

- Expansion of the statewide data communications network by standardizing local area networks.

- Integration of the computer systems in the state into a cohesive network through central support and improved standards for hardware, software, programming, and office systems.
- Encouraging productivity gains by supporting executive, management, professional and support staff use of computers and applications.

Careful selection and management of technology is necessary to realize the benefits possible. We hope the discussion of the State's information and communication systems architectures provides the knowledge base to support decisions that State government will make on future technology initiatives.

Appendix C--MONTANA DATA PROCESSING ADVISORY COUNCIL

Bob Marks, Director

Department of Administration
Chairperson

Andrea Bennett, State Auditor
Office of State Auditor

Peter Blouke, Deputy Director
Department of Social &
Rehabilitation Services

Phil Brooks, Director of Research
& Services
Commissioner of Higher Education

Judy Browning
Chief Deputy Attorney General
Department of Justice

K.L. Cool, Director
Department of Fish, Wildlife & Parks

Steve Bender
Assistant Budget Director for Operations
Office of Budget & Program Planning

Jack Ellery, Deputy Director
Department of Revenue

Gregg Groepper, Asst. Superintendent
Office of Public Instruction

Larry Larsen, Director
Department of Highways

Mike Micone, Director
Department of Labor & Industry

Richard Miller

State Librarian
Montana State Library

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Bob Mullen, Director
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Legislative Council

Andy Poole, Deputy Director
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Scott Seacat, Legislative Auditor
Office of the Legislative Auditor

Wayne Wetzel, Deputy Director
Department of Natural Resources

Keith Wolcott, Deputy Director
Department of Institutions

Steve Yeakel, Executive Assistant
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NOTE: This Council was appointed October 1, 1989, and was effective until September 30, 1990. A subsequent Council will be appointed in 1991.

Appendix E--9-1-1 ADVISORY COUNCIL

<u>Organization</u>	<u>Representative</u>
MT Assoc. of Counties (MACO)	Allen A. Jacobson 9-1-1 Council Chairperson Flathead County Commissioner
Montana League of Cities	Ardith T. Aiken 9-1-1 Council, Vice-Chairperson Mayor, City of Great Falls
Police Chiefs Assoc.	James Connors, Chief Anaconda/Deer Lodge Law Enforcement
MT Telephone Assoc.	Joan Mandeville, Director Regulatory & Industry Affairs Montana Telephone Association
Montana Sheriffs & Peace Officers Association	Rick Later, Sheriff Beaverhead County
Association of Public Safety Communication Officers (APCO)	Surry Latham Missoula 9-1-1 Center
Dept. of Justice	Mike A. Lavin, Deputy Director Department of Justice
U S WEST Communications	Thomas P. McGree U S WEST Communications
Department of Military Affairs	Guy Youngblood, Administrator Disaster & Emergency Services Dept. of Military Affairs

Appendix E--9-1-1 ADVISORY COUNCIL

Northwest Telephone, Inc.

John F. Gunnerson
Northwestern Telephone Systems

Montana Emergency Medical
Services Association (MEMSA)

Linda D. Williams
Fort Benton, MT

Montana Highway Patrol

Col. Robert Griffith, Chief
Montana Highway Patrol

MT State Fire Chiefs'
Association

Doug Pitt, Chief
Great Falls Fire Department

MT Association of Disaster &
Emergency Services

Paul Spengler, Coordinator
Lewis & Clark County D.E.S.

MT State Volunteer
Firefighters Association

Monte J. Idland
Fairfield, MT

MT Fire Districts Association

Opie Peterman
Conrad, MT

Dept. Health & Environmental
Sciences

Drew E. Dawson, Chief
E M S Bureau

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Musselshell County Commissioner

Doug Williams, Undersheriff
Chouteau Co. Sheriffs Office

Ardith Aiken, Mayor
City of Great Falls

Don Gruel, Administrator
Equipment and Maintenance Div.
Department of Highways

Ray Blehm, Chief
Fire Marshal Bureau
Department of Justice

Ron Haraseth, Supervisor
Communications Section
Department of Highways

Michael Bloom, Asst. Chief
Helena Police Department

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Montana Board of Crime Control
Dan Magone, Sheriff
Missoula Co. Sheriffs Office

Drew Dawson, Chief
Emer. Medical Services Bureau
Department of Health

Erwin Kent, Administrator
Law Enforcement Division
Fish, Wildlife, and Parks

Bob DeLange, Comm. Officer
Forestry Division
Department of State Lands

Senator Richard Manning
Senator from Great Falls

Senator Delwyn Gage
Senator from Cut Bank

Major Jerry Wilkerson, Chief
MHP Personnel/Training Bureau
Department of Justice

William Ware, Chief
Helena Police Department

Appendix F--PUBLIC SAFETY COMMUNICATIONS TASK FORCE

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Disaster & Emergency Services
Department of Military Affairs

Lyle Nagel, Sec. Treasurer
Mt. Vol. Firefighters Assoc.

Gordon Morris, Exec. Director
Montana Assoc. of Counties

Les Graham, Exec. Secretary
Board of Livestock
Department of Livestock

Representative Bob Pavlovich
Representative from Butte

Jesse Gonzalez, Supervisor
Billings Communications Center

Appendix G--MONTANA FREQUENCY ADVISORY COMMITTEE

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Montana Department of Highways

Doug Williams
Chouteau County Sheriff's Office

Dan Hawkins
ISD Office of Policy, Research,
and Development

Bob Schieder
County of Missoula

Homer Young
Disaster and Emergency Services

Bob DeLange
Department of State Lands

Jesse Gonzalez
Billings Fire Department

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Department of Administration
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Department of Administration
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Mike Randall, D.P. Manager II

Department of Highways
Don Lovely, D.P. Manager III

Department of Institutions
Jan Bouchee, Administrative Assistant

Department of Institutions
John Broderson, Bureau Chief

Office of Public Instruction
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Manager of Information Services

Department of Justice
John Matthews, D.P. Administrator

Department of Labor and Industry
Kirsten Graham, Bureau Chief

Legislative Auditor
Mary Bryson, Deputy Legislative
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Legislative Council
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Appendix H--DATA PROCESSING MANAGEMENT GROUP

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Department of Livestock
Dan Sidor, Systems Analyst

Department of Social and Rehabilitation Services
Ken Curtiss, Bureau Chief

Department of State Lands
Wally Jankowski, Systems Analyst

Department of Social and Rehabilitation Services
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Power Block Building

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State Fund
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Department of Military Affairs
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Helena Vo-Tech Center
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Department of Natural Resources and Conservation
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Commerce	Gary Wulf
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Governor's Office	Mary Jo Murray and Steve Bender
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Highways	Dennis Burke
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Institutions	John Brodersen
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Labor and Industry	Kirsten Graham
Lands	Wally Jankowski
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Livestock	Dan Sidor
Military Affairs	Stan Putnam
Montana Arts Council	Kathleen Burt
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Office of Public Instruction	Scott Buswell
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Revenue	Brenda Haseman
Secretary of State	Louise Ross
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Paul Rylander	Central Computer Operations Bureau Chief

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